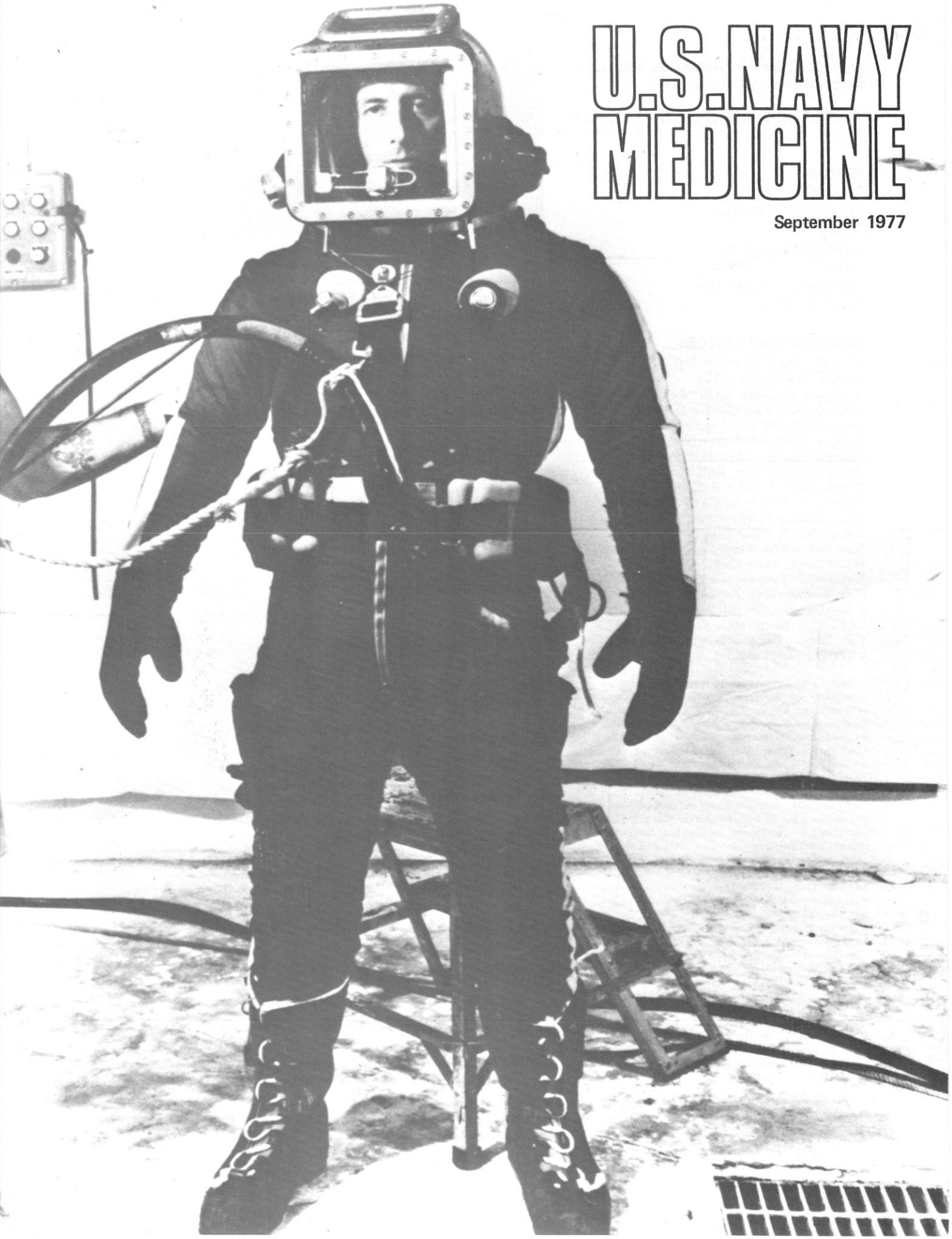

U.S. NAVY MEDICINE

September 1977

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U.S. NAVY MEDICINE

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COVER: This hard-hat diving system was evaluated at the Naval Medical Research Institute in the early 1970's to determine the impact of diving equipment and systems on a diver's safety and performance. For a report of the NMRI diving biomedical research and development program, see page 12.

Now the Good News . . .

THE SITUATION we have all lived through this summer reminds me of this story:

A general serving under Frederick the Great was promised a force of 60,000 men. But on reviewing his troops he found only 50,000. When he protested, Frederick the Great replied, "There's no mistake. I counted **you** for 10,000 men."

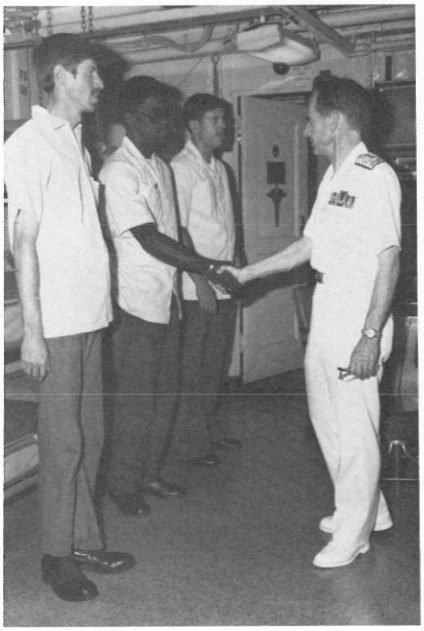
Frederick and his general would feel right at home in today's Medical Department where we have survived a long summer of shortages in manpower and money. All Medical Department members have been called upon to perform well beyond normal expectations—to compensate for a shortage of physicians by counting themselves and performing as more than one.

It is time to recognize the many benefits resulting from your "above and beyond" efforts.

Some good things are happening. Recruiting is improving at the same time our scholarship programs are starting to pay off. This year we selected 284 new students, and we have asked for funds to increase that number by 111 next year.

In the FY79 budget, the Chief of Naval Operations has identified nearly 20 million additional dollars for Medical Department programs. As a result we not only have recently installed our first computerized axial tomography scanner at NRMC San Diego, but have also gotten approval for two more CAT scanners for NRMC Portsmouth and the National Naval Medical Center in Bethesda.

Our construction programs—bogged down for a while—now show signs of getting back on track.



VADM W.P. Arentzen meets with USS Orion **hospital corpsmen (from left: HM2 H.R. Keesing, HM3 H.J. Harden and HN D.A. Stamour)**

Ground has been broken on the new hospital at Orlando. Plans are going forward for the new hospital at Yokosuka, and we have reached agreement with the city of San Diego to locate our new medical center there in Balboa Park, close to the fleet the facility serves.

We are actively planning to reinstate the Physician's Assistant Program in FY79. Our PAs have done a splendid job for us; we need more of them.

The bill to extend Variable Incentive Pay and Continuation Pay for medical and dental officers for another year has cleared the House and should go to the Senate floor shortly.

In the Nurse Corps, we are still able to recruit enough officers to remain at full strength. The total number of Nurse Corps billets is less than we need, but we are looking into ways to get the authorized strength increased.

A Patient Education Task Force, under the auspices of the Naval Health Sciences Education and Training Command, has begun to develop plans for a comprehensive patient education program to guarantee that all Navy health care beneficiaries receive the information they need to maintain good health.

Next year we will offer 14 more GME-1 positions to help accommodate more of our scholarship students. I keep a close watch on our training programs and am totally committed to top quality training. If a program can't be kept top-notch and viable, it will be closed. There is no question that we will have to train the bulk of our future specialists ourselves; traditionally, the physicians we train have been the physicians we retain.

I commend you for the understanding and resourcefulness you have shown in what have been by any measure most trying times. Your performance proves again that the Navy can count on the men and women who make up its health care team.

W.P. ARENTZEN
Vice Admiral, Medical Corps
United States Navy

"Sailor of the Year," HMC Joseph B. Laskowski . . .

Department Rounds

Sailor of the Year

Honors for the Navy's Best

"It's like a man walking in a field during a thunderstorm and a lightning bolt hits him. He's not expecting it at all," says HMC Joseph B. "Doc" Laskowski, describing how it feels to be named Atlantic Fleet Sailor of the Year.

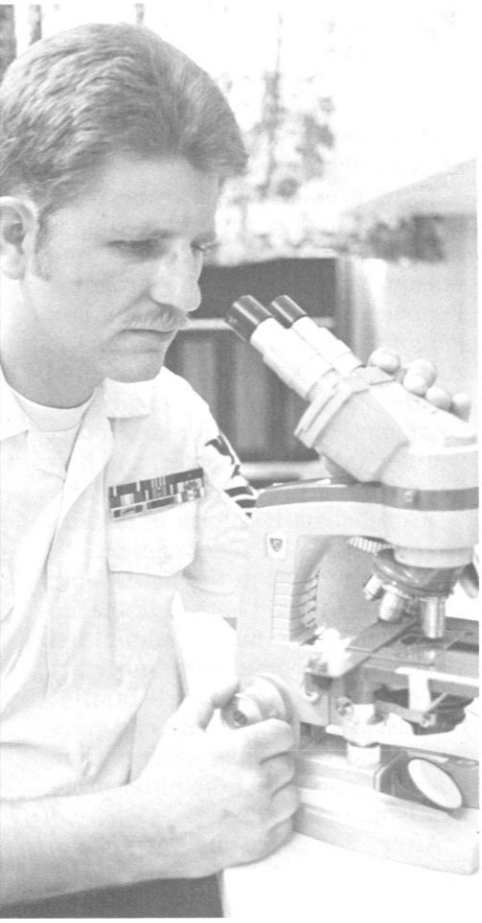
The 28-year-old hospital corpsman officially received this title and promotion to chief petty officer during a formal ceremony at the Pentagon on 25 July. Participating in the ceremony were Secretary of the Navy W. Graham Claytor, Jr., and Chief of Naval Operations, ADM James J. Holloway III. Later, Chief Laskowski received congratulations from top Medical Department officials on a visit to the Surgeon General's office.

"The title Sailor of the Year is given annually to three people—one enlisted man or woman from the Atlantic and Pacific Fleets and one from combined shore activities," Chief Laskowski explains. "The honor recognizes the very best all-around Navy member, with emphasis on professionalism."

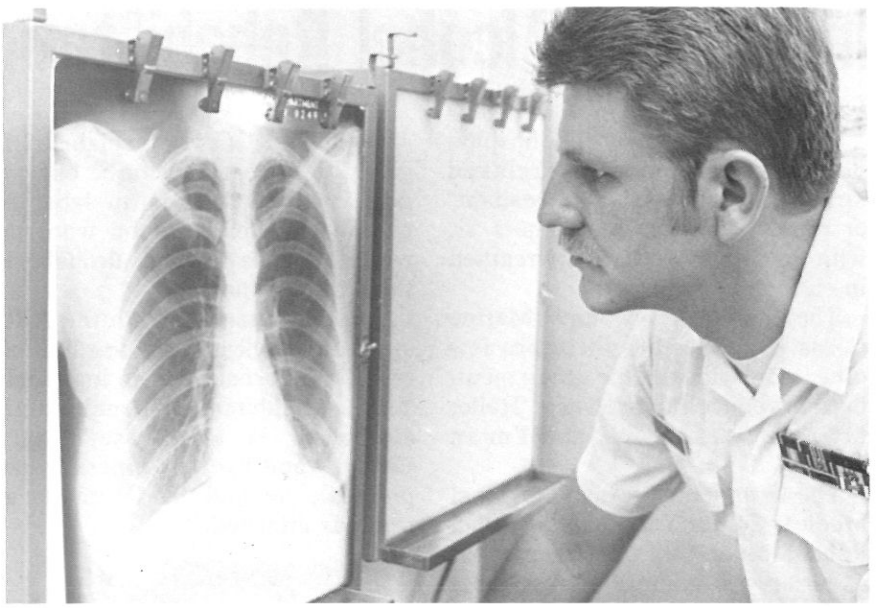
Chief Laskowski was nominated for the award while serving as a hospital corpsman first class aboard the minesweeper USS *Detector*. His commanding officer, LCDR D.B. Quelch, wrote in the nominating letter: "Petty Officer Laskowski has in one year provided the crew with one of the finest medical departments to be found on any minesweeper." Laskowski was also praised for his involvement in the ship's education program and for his extensive work in many community action projects.

Community action. The young Navyman believes his involvement in civilian projects, as well as his professionalism, helped him secure the high honor. "It was especially through my drug abuse education classes that I came into close contact with the community," he says.

"I associated myself with the various community action groups and offered my services as a lecturer in pharmacy. One thing led to another. I would give lectures for area PTA meetings, church and civic groups, and police departments. I affiliated myself with the Mental Health and Mental Retardation Board in Portsmouth [Va.], and the city sent me to the University of Miami to learn how to set up a community awareness team."



. . . focuses in on a blood sample



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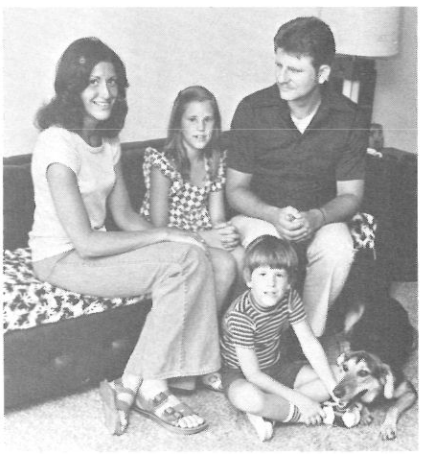


. . . relaxes with family

The six-foot, mustachioed Laskowski, as a youngster, moved "about 10 times" with his family before graduating from Mentor (Ohio) High School in 1968. Then he headed straight for the Navy recruiting office. He completed basic training that same summer and in August, newly married, was sent to Camp Pendleton, Calif. There he attended Field Services Medical School, preparing for more than two years' duty with Marine Corps units in Vietnam, Okinawa, Taiwan, Japan and Korea.

Instructor. When he returned home, "Doc" Laskowski once again became a student, this time at the Portsmouth, Va., Medical Service Technician School. During that training he developed his interest in pharmacology and drug abuse problems. He was selected to stay on at Portsmouth as an instructor in pharmacology, pharmacy math, and drug abuse education.

But he realized that to be truly effective he would have to broaden his educational background, so Laskowski enrolled in an off-duty study program sponsored by George Washington University. In 1975, he earned an associate degree in science.

From Portsmouth, Laskowski, who wears nine military decorations, joined the minesweeper *Detector*, and went on to win the coveted title Sailor of the Year.

"There are intangible benefits to being the Sailor of the Year," Chief Laskowski says, "such as the recognition that all hospital corpsmen will be receiving through me, and the personal satisfaction of being able to represent the entire enlisted community."

With pride and a broad smile, Laskowski goes on to say, "When we Sailors of the Year accept the award it's not just for ourselves and our families, but for all the enlisted people—and there are many who are outstanding."

Following the ceremony in Washington, the Laskowski family, including daughter Carol, 8, and son Joseph, 5, flew to San Diego for a five-day all-expense-paid vacation.

Awaiting the Sailor of the Year on his return to Norfolk was a new job as assistant to the Atlantic Fleet Master Chief Petty Officer. Chief Laskowski will work with the fleet's top-ranked enlisted man to identify potential problem areas in the welfare and morale of Atlantic Fleet personnel and their dependents.

"Part of my job will be to visit fleet units and talk to people to get the pulse of what's going on," he explains.

And Chief Hospital Corpsman Joseph Laskowski, Sailor of the Year, should have no trouble finding that pulse.

—Story by Pat Thiele. Photos by Archie Galloway and Milt Putnam.

Inside the Alcohol Rehabilitation Unit

Some lumber into the hospital conference room with relaxed strides; some are sullen, hesitant, or passively blank; still others sit with good-humored grins wreathed in cigarette smoke.

They wear Navy and Marine Corps uniforms, but there are few other similarities as the group members introduce themselves: "Hello. My name is _____, and I'm an alcoholic."

The 15 patients in Naval Regional Medical Center Yokosuka's Alcohol Rehabilitation Unit (ARU) represent a variety of military ranks, jobs, years in service, backgrounds, and attitudes. The youngest group member is 19, the oldest 38. Some are completing their first day in the ARU treatment program, while others approach their sixth and final week.

The Yokosuka ARU is one of 14 such facilities the Navy sponsors in the U.S. and at oversea naval bases. The unit will accept up to 15 people at a time for a six-week clinical program stressing the principles of Alcoholics Anonymous. These programs are similar to the programs available at the four much larger Alcohol Rehabilitation Centers that the Navy has set up in the U.S.

The unit at Yokosuka is under the direction of the medical center's chief of psychiatry. Senior counselor for the ARU is Chief Petty Officer Ron Covey—a recovered alcoholic.

"I use my own history as an alcoholic to relate to the patients," Covey says. "It's not a stigma that I can't talk about. If my experiences may help somebody—well, there's almost nothing I wouldn't do to help an alcoholic get well."

Bill of fare. On arriving at the unit, the applicant answers a brief questionnaire about his general and alcohol-related history. "We look for problems like charges of driving while intoxicated or possession of alcohol aboard ship, unauthorized absences, and a drop in performance marks," Covey explains. "It gives us a clearer picture, but we don't use information to label or classify. The only person who can really label anyone an alcoholic is the alcoholic himself."

After an interview with the ARU staff, the applicant may be admitted to NRMC Yokosuka as an inpatient. "He's considered a patient because alcoholism is a disease," says Covey, "and like any illness it has physical, mental and emotional traumas attached."

Chief Petty Officer Ron Covey
'Nothing I wouldn't do to help'

For the next six weeks the ARU staff uses every method at their disposal to help the patient help himself. In the mornings, the bill of fare includes educational movies, large and small group discussions, physical therapy, and "rap" sessions with the staff. Afternoons are spent on field trips and listening to guest lecturers.

A main feature within the scheduled activities is the weekly trip to Kehin Kamata's intercultural Alcoholics Anonymous meeting. "It's led by a recovered alcoholic Catholic priest and about half of the members are Japanese and half are American," says Covey. "The group itself makes the vivid point that alcoholism is not cultural or racial, and has no regard for finances, age, or sex."

Bitter problem. Back at the Yokosuka ARU, Navy patients gather in the conference room to discuss their reasons for being in the program. Responses vary according to how long the person has been in the ARU; whether he had volunteered for the program, been sent by his command, or referred from another ward in the medical center; and how he perceived his drinking problem.

"Alcoholism is a form of idolatry for me," says an older patient. "I worship the stuff in the bottle—but at the same time, I hate it. It's taken a long time for me to admit that alcohol has become more important to me than anything—family, friends, sex, life." Nods of agreement and sad, half-smiles from other patients attest the bitter problem is mutually shared.

After 20 years in the Navy, another soft-spoken patient says he first began to realize his problem when he was asked to transfer to the Fleet Reserve. "I didn't want to transfer," he says. "It took a problem to make me realize the bigger problem. The four weeks I've spent here is the longest I've gone without alcohol in almost 10 years—but I still don't want to think of myself as an alcoholic."

A young man, seated away from the group, insists he is not an alcoholic, but rather is only going along with his command's decision to send him through the program. "It's just that I really express myself better when I'm drunk," he says. "Sometimes I've been out with friends, and I've gotten into a little trouble—but I don't think I have a drinking problem. Not *really*."

Nearby, a patient smiles. "It took a while for me to know that who I was didn't pour from a bottle," he says.

Physical deterioration is cited as another reason for volunteering for

the ARU program: "When I joined the Navy, my blood and urine tests were fine. At my reenlistment physical, I was in near-diabetic condition. Three months later, I had pneumonia. I was falling apart mentally and physically, but I couldn't deal with the problems—so I'd go out and get 'wasted.'"

Human worth. Viewed as a cross-section of the American population, it should be no surprise that the Navy has members with drinking problems. The National Institute on Alcohol Abuse and Alcoholism estimates that there are some 10 million alcoholics in the U.S. In a 1974 survey by the Bureau of Naval Personnel, about 15% of the 9,508 officers and enlisted personnel surveyed reported drinking problems which impaired their duty performance, their personal life, or both. Ten percent of those surveyed were chronic problem drinkers in need of immediate assistance.

"Navy policies show that the Navy feels pretty strongly about the human worth of each individual," says Chief Covey. "The human potential that lies dormant in a problem drinker—well, the Navy feels it's worth retrieving. Ten years ago, even before there was an official program, the Navy was treating alcoholics at Long Beach."

According to the Chief of Naval Operations, the Navy policy is that alcoholism is a "preventable and treatable disease and requires . . . enlightened attitudes and techniques. Prevention is the responsibility of the individual."

But no individual is so adept at making excuses as an alcoholic. "When co-workers began to notice I worked better without a 'hangover,' I resented them," one ARU patient tells the group. "I skipped work, and eventually tried to make a comedy act out of being the 'division drunk.' It didn't work—and I was scared."

Various stages of alcoholism are interpreted by the group as fears: fear of legal consequences, of discharge, of friends and family becoming aware of the problem, of death. In several patients these fears are coupled with a sense of shame over how the problem has hurt others.

"I knew I was hurting everyone, but I still couldn't accept the idea that I was an alcoholic," says a man in his early 20's. "I still can't, really. It's so easy to rationalize."

Some of the favorite rationalizations include:

- I'm not as bad as so-and-so. He drinks a full bottle a day, and I only drink a half.
- I'm never late for work (no matter what condition I'm in).
- I've never been really sneaky about it.
- I don't take hard drugs.

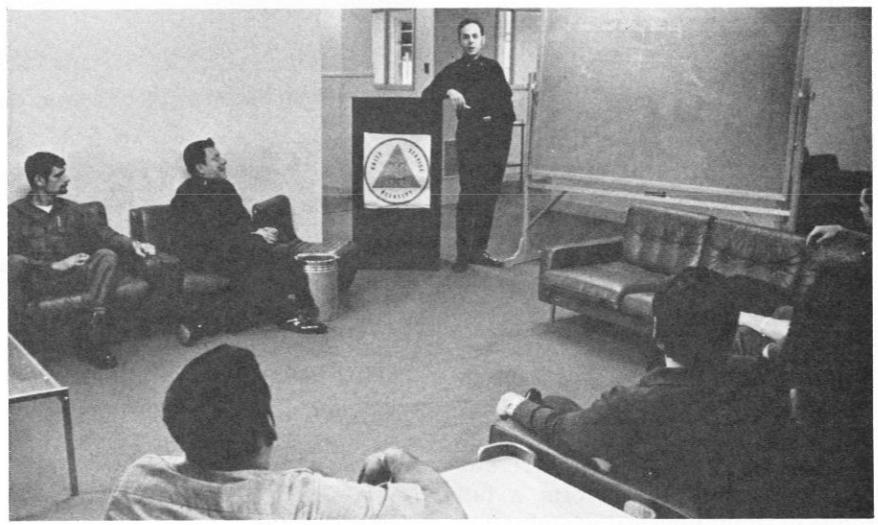
Temptation. When one newcomer admits his suspicion of the ARU program and speaks of "brainwashing techniques," older patients emphatically object. "I felt like that at first," another patient tells the newcomer. "When I first came, I thought I was the only person in the world who had this kind of problem. For me, the ARU was like turning on a light in my head. Pieces of what the counselors and other patients said began to filter through to me. They'd explain something, and I'd think: 'Right! That's how it is.' I just wish I could stay here."

Patients also discuss their fear of the stigma of being "sober alcoholics."

"People are usually self-righteous," one patient says. "I mean, how do you react when I tell you I'm an alcoholic?"

A greater fear is the temptation of the first drink: "I'll be an alcoholic always—even if I never drink again. I know I've got to go back outside. Yes, I'm scared. But the difference is that now I've got another shot at life.

"I don't look too far ahead, though. I've developed more confidence, motivation, and pride here—but I just keep thinking: 'One day at a time.'"



Chief Covey discusses ARU treatment program with group

The Navy retains its Alcoholism Prevention Program because the program works—and works well. The program claims a 70% recovery rate based on the criteria of former patients who have returned to active duty, been recommended for reenlistment, or recommended for promotion within one year following treatment.

"I think the reason for the Navy's success is the people in the program," says Chief Covey. "About half of the directors, counselors, and staff are sober alcoholics. They understand the pain of alcoholism—and they know what they're talking about."

—JO2 Betty Pease, USN

Not for Flight Surgeons Only

Navy primary care physicians interested in aviation medicine can now get involved in the field without making a full commitment to flight surgeon training. A short course given at the Naval Aerospace and Regional Medical Center in Pensacola prepares physicians for duty as aviation medical officers (AMOs)—trained to care for aviation personnel when no flight surgeon is available.

"AMO students learn that seemingly minor physical problems may have a big effect on the ability of flight personnel to perform well," says CAPT M.G. Webb (MC), director of BUMED's Aerospace Medicine Division.

AMOs are introduced to the physiological and environmental stresses encountered by aircrewmen and aviation support personnel: hypoxia, dysbarism, spatial disorientation and acceleration, as well as thermal changes, radiation and noise. They are also trained in the physical standards for all types of aircrewmen, and learn to perform a full range of flight physical examination procedures. Sessions on operational medicine cover aerospace psychology, aviation safety, and alcohol abuse, among other topics.

Details of the training can be found in BUMED Instruction 1520.24 of 1 April 1977.

The AMO program was developed as a partial solution to the Navy's shortage of flight surgeons. On completing training, AMOs are stationed in branch clinics at Naval or Marine Corps air stations and other installations with large numbers of naval aviators—the Naval Weapons Center at China Lake, Calif., for example.

AMO classes are held three times a year. Interested medical officers should apply to BUMED Code 511 through their chain of command.

Seaman from Panamanian oil tanker disaster is rushed to NRMC Camp Lejeune

Tanker Evacuees Get Emergency Care

An early-morning explosion aboard the oil tanker *Claude Conway* 125 miles off the North Carolina coast last March sounded the alert for an emergency medical team at Naval Regional Medical Center Camp Lejeune.

The Panamanian-registered tanker broke in two on 20 March, with crewmembers suffering nearly 24 hours' exposure to rough seas before their rescue.

A Coast Guard helicopter brought the first five evacuees to the medical center on 21 March, where they were met by a team of Navy physicians, nurses, and hospital corpsmen. These first five patients were the most seriously injured of the crew. One man arrived with burns over 90% of his body, and was later transported to the burn center at Brooke Army Medical Center, Fort Sam Houston, Tex.

Thirteen less seriously injured men arrived on a second Coast Guard helicopter at noon. They were escorted to waiting ambulances by the same emergency squad of Navy hospital corpsmen, Marines, and civilian firemen who helped transport the first evacuees to the medical center.

In all, 18 survivors were brought to NRMC Camp Lejeune. Nine more men were taken aboard a Liberian tanker en route to Baltimore. Another 12 crewmembers could not be accounted for.

The 18 survivors who reached NRMC Camp Lejeune were taken to the emergency room where the medical staff treated injuries that included burns, fractures, cuts and abrasions. Several hypothermia machines were set up to raise the critically low body temperature of men exposed to wind and water for such a long time.

Eleven of the men were released from the hospital the day after their admission. The other patients required longer hospitalization, but all subsequently recovered and returned to their homelands.

—Story and photos by CPL Larry Lindsey

Features

Patient Education: A Tool for Efficient Health Care Delivery

LCDR Robert Downs, NC, USN LCDR Paul Eklund, MSC, USN LCDR Roger Shaver, MSC, USN

I know of no safe depository of the ultimate powers of society but the people themselves; and, if we think them not enlightened enough to exercise their control with a wholesome discretion, the remedy is not to take it from them, but to inform their discretion by education.

Thomas Jefferson

Many patients who frequent the doctors' offices, medical clinics and hospitals of this nation do not realize that they can exercise significant control over their own physical well-being. They do not understand the nature of illness nor what constitutes sound health practices. They are unaware of the limitations inherent in any health care delivery system.

In a Louis Harris study carried out in 1971 for the Blue Cross Association (*1*), 65% of the respondents believed they could recognize the symptoms of most important illnesses. But when asked specifically about the "seven danger signs" of cancer—the second leading cause of death in the U.S.—only 13% of the people surveyed could identify four or more signs; 17% could identify only one sign, while 30% could identify none.

Surveying knowledge of heart disease—the number one cause of death in the U.S.—the Harris Study found that only half the respondents were able to volunteer more than one symptom that might indicate a heart condition or heart attack. Twenty-seven percent were unable to name any such symptoms.

The Harris Study concluded that in the U.S. a critical information void exists about major illnesses. There is a large gap between the public's presumed knowledge about major illnesses and the knowledge they are able to demonstrate.

To help close this gap, health care providers must create programs to stimulate the demand for preventive health care information. The public's attention must be focused on health care problems before they become chronic. Examples of noteworthy efforts to promote better health habits include recent campaigns against smoking and drug abuse, and encouraging physical fitness and proper nutrition.

Does consumer education get results? Consider the public's response to the growing awareness that the cost of a serious illness today can be catastrophic. Following the national emphasis on illness-centered care, the public is pressuring Congress to provide a national health insurance program to cover ever-increasing hospital costs. Yet these same concerned citizens overlook the role health education can play in reducing runaway costs and helping to lessen the burden on our nation's health care delivery system.

The ultimate goal of the health care system is to help individuals change their behaviors and take the preventive and curative actions that promote, protect, and maintain their own optimum level of health (*2*). In support of this goal, more information about maintaining good health must be made available to the public. The availability, relevancy, and accuracy of this information will influence how the public makes use of health services. Programs stressing the importance of primary and secondary prevention can educate the public to adopt lifestyles conducive to a long and productive life. Healthier lifestyles will in turn lead to more efficient and less costly use of health care services.

Health education can also help lower costs for patients who require hospitalization. In a study of patients undergoing intra-abdominal surgery at Massachusetts General Hospital (*3*), patients who received health education required less narcotics and were discharged an average of 2.7 days earlier than a control group of patients who received no health education.

Health education can help lower the number of patients seeking emergency services, relieving some of the burden on acute treatment centers. A study of 58 asthmatic patients revealed that, in a four-month period, patients who participated in health education programs made 55 fewer visits to the emergency room than did the control groups of patients (*3*).

From the National Naval Medical Center, Bethesda, Md. 20014.
LCDR Downs is patient coordinator for the NNMC Psychiatric Service, LCDR Eklund is an optometrist assigned to the Eye Clinic, and LCDR Shaver is with the Pharmacy Service.

Most people are not self-motivated to seek out and use educational materials about health care. A strong promotional program is required that will expose the consumer to health information again and again. Essential steps in setting up such a program include:

- Identifying types of consumers to be educated through the program.
- Developing relevant and effective messages.
- Selecting the best means for transmitting these messages to intended consumers.
- Determining the cost of the patient education program as related to its potential return.

Patient education has the support of the Navy Surgeon General, who earlier this year directed medical facility commanding officers to set up health care consumer councils and establish local patient education programs.

BALANCING PATIENT DEMANDS

Any health care facility has the responsibility of meeting the demands of its patients. Problems arise, however, when the patient's health care demands do not match his health care needs as determined by the provider (*4*). The result: inefficient use of health care resources.

Today the Navy Medical Department is caught in the squeeze between an increasing patient demand for services and a concomitant decrease in resources. The consumer health education program called for by the Surgeon General will help balance demand against capability and actual need. For example, the primary objective of the health care consumer council is to determine patient demands through a free exchange of ideas and information between consumer representatives and representatives of the health care delivery team. The councils give beneficiaries a forum to express their opinions about Navy health care; at the same time, the councils give hospital staff members an opportunity to discuss and explain policies, practices, problems, and other important matters.

On the council, the medical facility is usually represented by its director of clinical services, patient affairs officer, nursing supervisor, and a dental officer. Other council members representing the hospital are a command-sponsored ombudsman and the senior chief petty officer. These members describe the policies and problems of the medical facility, and explain what services are available. Most important, they listen to the consumers and answer questions.

The consumer members represent various area or tenant commands, wives' groups, retired military members, volunteer services, civilian personnel, and other organizations whose membership includes Navy health care beneficiaries. The consumer representatives bring the opinions of the medical facility's patients to the attention of the council. But to be effective, the representatives must make themselves known to health care consumers; they must be readily available and actively seek out questions and opinions.

EDUCATING THE WORRIED WELL

The patient education program is directed towards the "well" and the "worried well" to help them use Navy health care resources wisely. Clinic visits by worried well patients can probably be significantly reduced through effective patient education. As health care costs continue to rise, it becomes increasingly important to educate our beneficiaries about health care.

The general objectives* of a patient education program are:

1) To minimize the workload of the health care professional.
2) To increase patient satisfaction with the care received.
3) To improve therapeutic effectiveness.
4) To economize in using health care resources.

The patient needs to know why, when, where, and how to enter the Navy health care delivery system. Here are some ways naval medical facilities can provide this information:

- Encourage beneficiaries to become familiar with how the facility is organized and with the hours various clinics are open.
- Encourage patients to make appointments for care, except in emergencies.
- Encourage people to keep their immunizations up to date.
- Teach good personal hygiene practices.
- Throughout the year, inform people when certain seasonal illnesses will be prevalent. Explain how to recognize these illnesses and remedy them at home.
- Teach people how to prevent or manage their own minor illnesses and injuries.
- Teach people to recognize and seek prompt attention for significant illness.
- Increase the patient's understanding of his own health problems, and of therapeutic measures prescribed or undertaken.
- Explain the capabilities of the emergency room and discourage its use for other than emergency problems.
- Teach patients to differentiate between health care problems that require a physician's attention and problems that can best be handled by other health care personnel.
- Alert people to the hazards of keeping medications in the home, and teach them how to properly dispose of old or surplus medicines.
- Teach patients the importance of maintaining accurate and complete medical records.
- Encourage patients to seek all their health care at the same facility so the continuity of their care will be un-

*Adapted from Naval Hospital Patuxent River Instruction 1510.3 of 18 Feb 1977. Subj: Patient Education Program.

broken and duplicate tests and examinations can be avoided.

- Develop surveys or questionnaires to encourage patients to record their impression of the service they receive.

There are many ways to provide consumers with the information they need. Among them:

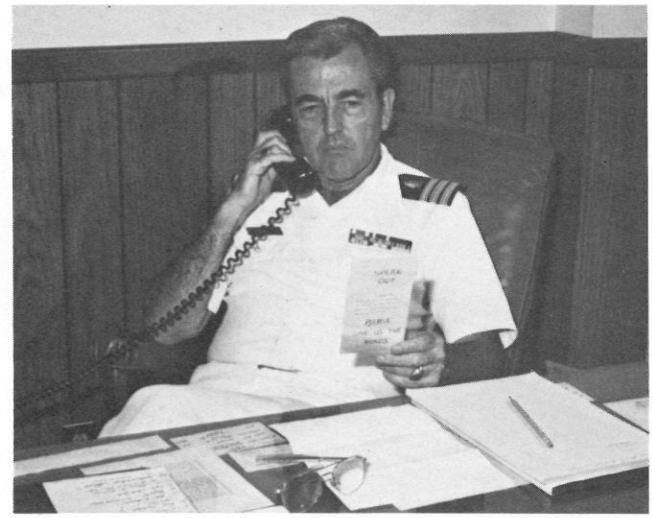
- Instruction sheets explaining therapeutic as well as diagnostic procedures.
- Pamphlets describing minor diseases and offering advice for home care.
- Health care bulletins to announce changes in clinic schedules, remind people to get immunizations, and disseminate information about seasonal illnesses.
- Orientation briefings and printed materials for new residents and retiring personnel.
- Presentations designed to inform wives' clubs, school children, scout groups and so forth about health topics.
- Audiovisual programs on specific diseases, therapeutic regimens, and diagnostic procedures.
- A Hot Line for pediatric health information.
- Local radio and television spot announcements on health care topics.
- Stories in local and base newspapers and newsletters.
- An Action Line telephone, operating 24 hours a day, seven days a week, with messages relayed to the CO's office and responses made within 24 hours when possible, and within 72 hours at the latest.
- Information made available through existing community programs.

Because consumers are the benefactors of this effort, they should also bear some of the responsibility for health education. They must avail themselves of the information offered. Consumers, as well as providers of health care, must understand that the worst time to educate a patient is while he is sick. Our beneficiaries must read the pamphlets, watch the audiovisual programs, and attend the special presentations before—not after—a crisis occurs.

One final consideration: health care facilities sometimes lose sight of the fact that they exist to serve the patient, not to benefit the practitioner. Too often, staff members have the attitude "this would be a great place to work if there were no patients." No one with such an attitude can deliver really good patient care. Quality care can only be dispensed when health care providers are both efficient and courteous.

PROGRESS AT PAX RIVER

To evaluate how well the Surgeon General's directive on patient education was being observed, we took a close look at the program at Naval Hospital Patuxent River, Md. This is a fully accredited, 23-bed hospital which supports a large outpatient clinic. Among the specialty services provided are family practice, pediatric surgery, orthopedics, internal medicine, Ob/Gyn, and emergency room care.



CDR James R. Erie (MSC)
Concern for the community's health

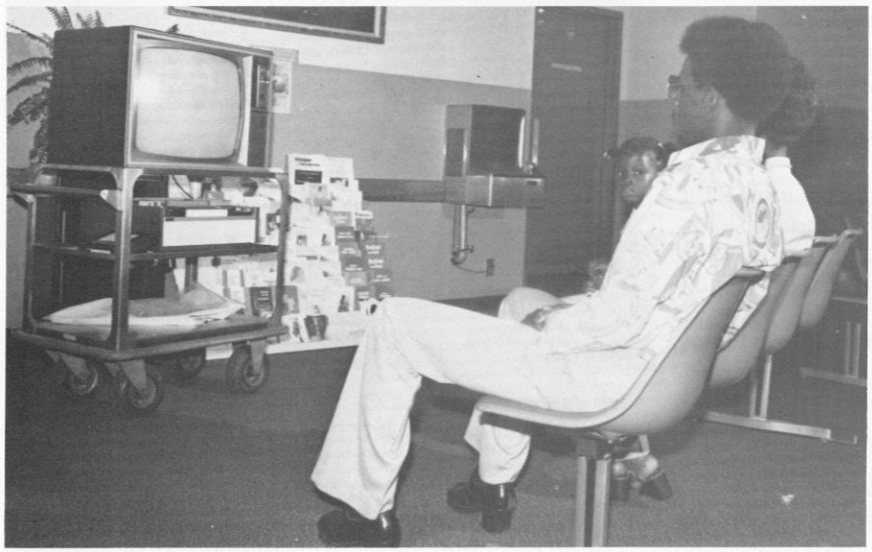
Located on the Naval Air Station, Naval Hospital Patuxent River is the area's only military source of health care treatment and information. This relative isolation should give greater validity to our evaluation of the patient education program's impact.

When the Surgeon General's directions were issued in January 1977, Naval Air Station Patuxent River already sponsored a consumer panel through which representatives of the many station sub-units and wives' groups could discuss ideas and problems with representatives of the commissary and exchanges. Since this was already an active and effective means of exchanging information, the hospital commanding officer, CDR James R. Erie (MSC), elected to add Medical Department representatives to the existing panel rather than set up a new panel.

At the hospital itself, a series of staff meetings was undertaken to discuss the importance of courteous, effective, and efficient treatment of patients. Also, all new arrivals to the staff received indoctrination programs designed to instill these attitudes. Even after the initial discussions were completed, staff meetings have been continued as a forum for suggestions on ways to give better service. At these meetings, complaints received at the hospital and at other facilities are discussed to determine what went wrong and how the patient might have been better cared for. Pamphlets and other written material stressing the theme of consumer rights support the discussion.

During reporting aboard procedures, newcomers to NAS Patuxent River are briefed on the health services available. The briefing is supplemented by an informational pamphlet, "This Is Your Hospital," which lists the hospital's hours of operation and gives a brief description of all services.

(Below) Videocassette players provide health education programs in clinic waiting rooms. (Right) LCDR M. Murphy, family practitioner, helps a young patient relax during examination.

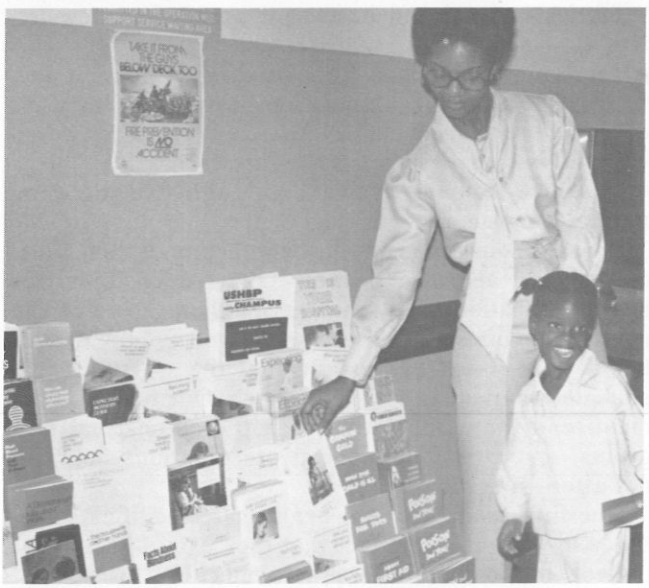


Because the hospital CO believed the patient education program would be more effective if consumers were aware of the hospital's commitment to and concern for the health of the community, staff members now accept invitations to speak before responsible community groups. Lecture topics are diverse: one well-received lecture covers health benefits available through CHAMPUS; other popular topics include first aid, venereal disease, and child abuse. It is not unusual for these lectures to be given at 0200 in the ready room of one of the various squadrons. Extensive first-aid instruction is given to all search and rescue teams. Also, all community members are welcome to attend cardiopulmonary resuscitation training courses given twice weekly; the effectiveness of this training has been enhanced by the local wives' club's gift of equipment and mannequins.

During the last outbreak of influenza, the principal of the local elementary school asked the hospital to send a speaker for a PTA meeting. A pediatrician attended to discuss the influenza outbreak and teach parents how to manage the illness at home. Also, local school children and scout groups regularly tour the hospital, where they receive important health care information they can pass on to their parents.

With the lecture program solidly established as a community resource, the hospital began a more comprehensive program of education, zeroing in on specific diseases and teaching patients how best to use the health care delivery system.

The program helps make educational material available to consumers at every opportunity. Outside the hospital, "Welcome Aboard" packets are stuffed with



Numerous health pamphlets are available

health information and pamphlets, and flyers are placed at strategic points around the air station. All this information is brief and kept up to date, reflecting the health problems most common during the different seasons.

The greatest amount of information is found in the reception areas of the hospital's clinics. A videocassette player is moved to the various waiting areas to show health education programs produced by the Navy Health Sciences Education and Training Command in Bethesda. Booklets produced by national associations such as the Red Cross and the Society for the Blind are

displayed. In addition to this commercial information, each clinic has developed its own pamphlet that describes common health problems and their treatment. Patients are encouraged to call the clinic if they have questions about any health problem.

The clinics also are beginning to use a local variation of the Tel-Med telephone communication system. Here again, the talents of the staff are used rather than commercial tapes so the material can be tailored to the specific health needs of the local community. The plan is to vary the information each month. When a particular health problem arises, a new tape will be produced to inform patients about it. These tapes are supplemented by printed material distributed throughout the community.

The hospital's pharmacy, optometry, and physiotherapy services also prepare tapes to teach patients how to make the best use of those services.

Locally produced printed material carries telephone numbers patients can call for further information. When such calls come in, the clinic receptionist records the patient's name, telephone number, and presenting complaint. The patient is told that his call will be returned promptly. The receptionist then retrieves the patient's health record and takes the record and the presenting complaint to the clinic's nurse screener. If the complaint is routine, the nurse will return the patient's call and handle the problem. If the complaint is complicated, the nurse will confer with the clinic physician, and then either the nurse or the physician will return the call. If the patient needs to be seen in the clinic, an appointment will be made. All requests for treatment are documented in the patient's health record.

While the hospital's education program is still being expanded, early efforts have begun to show results. For example, clinic appointment schedules have been changed so each physician has six appointments each day reserved for patients with acute problems (defined as patients who must be seen within 24 hours). Another six 15-minute "hold" periods are kept available for walk-in patients. Emergency room personnel now evaluate patients as they arrive; patients who do not require emergency care are referred to the clinic appointment desk where they are given an appointment to be seen later, usually within 48 hours. All patients are instructed on the importance of keeping appointments or cancelling them in sufficient time to permit other patients to be seen.

Before the new system was instituted, all acute care and hold appointments were filled; about 20% of scheduled patients failed to keep their appointment. Within three months, under the new program, the number of emergency room visits had dropped. "No-shows" were down to 10% or less. Acute care appointments and "hold" appointments were only partially filled. Patients who must be seen by a physician soon after they call in for the telephone consultation or arrive in the emergency room are now scheduled for an appointment that same day.

Patients who must wait more than ten minutes past a scheduled appointment time are told the reason for the delay. After a 20-minute delay, patients are given three options: they may continue to wait, they may see another physician, or they may reschedule their appointment.

During these same three months, there was a steady increase in telephone consultations and a decrease in clinic visits. This change is especially significant when compared with other treatment facilities which are sometimes overwhelmed with patients—during outbreaks of influenza, for example.

OBJECTIVES OF PROMOTION

The field of health care delivery has only recently begun to appreciate the use of marketing principles. In its Consumer Health Education Program, the Navy Medical Department makes use of one of these principles: promotion. By setting clear objectives, Naval Hospital Patuxent River has shown that a patient education program can improve the efficiency of health care delivery.

The first objective is *to establish direct communication between provider and consumer.* Useful here are printed materials, audiovisual aids, lectures, and so forth.

The second objective is *to stimulate demand by involving the community in health-related issues.*

Achievement of the third objective—*educating patients to discriminate between services*—was evidenced by decline in the use of the emergency room and the concomitant increase in the use of more appropriate entry points into the health care system.

That the fourth objective—*to recognize the value of preventive health care*—was successfully met is demonstrated by consumer requests for preventive health care programs to be given at various meetings throughout the community.

The value of a patient education program can only be determined over a long time. Despite its initial accomplishments, the Patuxent River program has not been used long enough to measure its ultimate effectiveness. The prospects for its success look good, and other naval medical facilities may wish to study and apply its methods.

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Navy Diving Biomedical Research and Development: The NMRI Program

Mary M. Matzen

The Naval Medical Research Institute (NMRI) in Bethesda, Md.—a multidisciplinary research facility sponsored by the Naval Medical Research and Development Command—is the Navy's lead laboratory for diving biomedical research and development.

Investigation into the biomedical problems of fleet divers has been under way at NMRI since 1942. Today, research efforts range from finding timely solutions to diving medical and operational problems encountered within the current 1,000-foot diving capability, to developing methods for effective diving to 2,500 feet by 1985.

NMRI diving researchers will soon have a greatly expanded research capability: a new hyperbaric research facility, which will house a wet pot capable of simulating depths to 3,300 feet of seawater (fsw) and will include living quarters and support for divers under pressure. With this capability, NMRI can conduct advanced human hyperbaric research in its own laboratory.

For animal studies, the new complex will provide 21 smaller chambers capable of simulating 3,300 fsw. A mobile service chamber will permit test animals to be held under pressure while their chambers are cleaned; such an arrangement will enable researchers to carry out long-term studies under pressure.

Animals are used initially to test techniques developed for eventual human experimentation—drug interactions, for example.* Animals are also used in experiments where use of human subjects is not feasible: for example, deep electrodes are implanted in animals to establish the relationship between brain activity and hydrostatic pressure.

Investigators also test new concepts on animal models and only after thorough testing will move on to human experimentation, with volunteer Navy divers serving as subjects. One example: an animal experiment involving the estimation of time has contributed to the understanding of how human divers adapt to repeated hyperbaric exposures. Time estimation in animals is a sensitive response to experimental manipulations. It is also a precise technique for measuring human performance. In an adaptation study by Thomas and associates (*1*), rats were trained by operant techniques to press a lever at regular time periods. Stable performance baselines were established for each animal. The training was done at "surface" pressure (1 atmosphere).

The rats were initially exposed to hyperbaric pressure in a simulated pressure-chamber dive to 200 fsw while they were breathing compressed air. This initial exposure to pressure disrupted and modified the established performance baseline by substantially increasing responses. Further experimentation showed that when intervals of time were allowed to elapse between subsequent dives, the timing precision of the rats at 200 fsw was not disrupted; the rate of response returned to surface baseline values.

When Navy divers were asked to punch buttons under the same environmental conditions, the results were similar.

COPING WITH PRESSURE

Many of the diver's physiological problems stem from the effects of pressure on his body. This pressure is made up of two forces: the weight of the water over the diver, and the weight of the atmosphere over the water. With each 2-foot increase in depth of seawater, pressure increases by almost one pound per square inch (psi). Each 33 feet of descent in seawater increases the pressure by an additional atmosphere (14.7 psi). The effects of pressure can be grouped into two categories: direct or mechanical effects, such as the compression of body air spaces during descent; and indirect effects, which result from changes in the partial pressures of gases in the breathing medium (*2*).

The breathing medium means life to the diver, but it is also the source of many of his physiological problems because, under hyperbaric pressure, the diver's body interacts with the breathing gases. The breathing equipment itself, which delivers and regulates the gases, can also cause or extend many of the diver's problems.

Because of its ready availability and low cost, compressed air is the breathing mixture most commonly used for dives as deep as 150 fsw. Mixed gases are used

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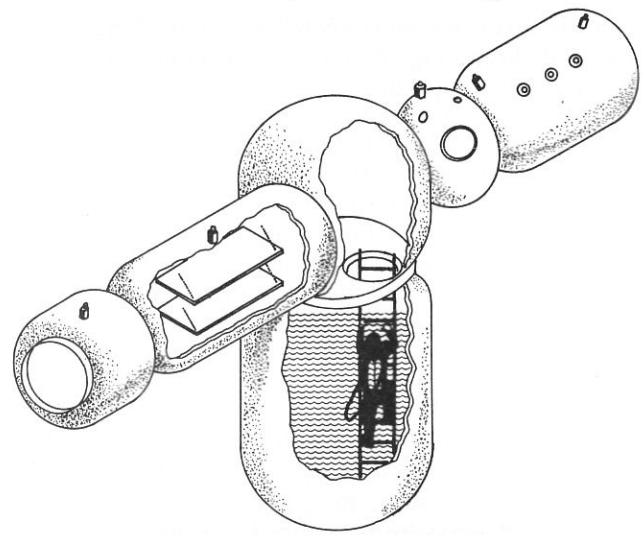
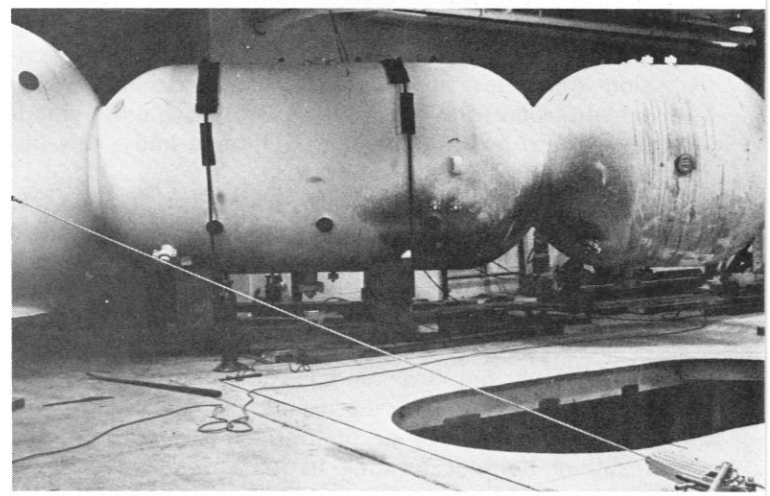
*Animal experiments are conducted in accordance with the principles set forth in the "Guide for the Care and Use of Laboratory Animals," Institute of Laboratory Animal Resources, National Research Council, Department of Health, Education and Welfare, Publication No. (NIH) 74-23.

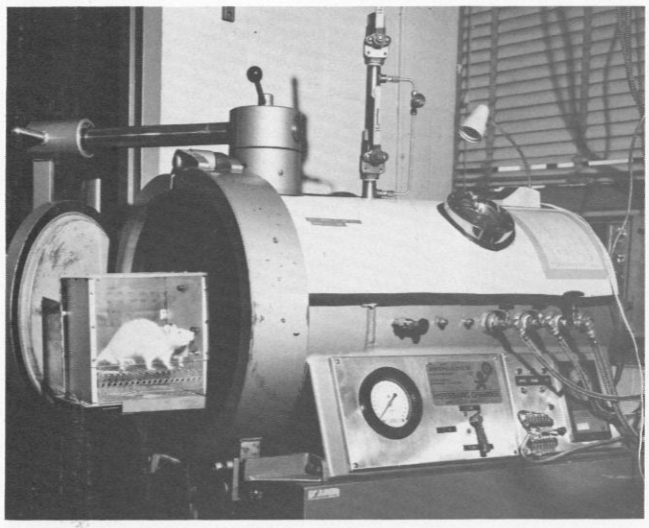
The first section of NMRI's new hyperbaric research facility arrived in March. The "wet pot" is in the foreground.



Artist's concept of man-rated chamber complex



(Above) Dry chamber is unloaded and (right) installed in NMRI lab. Second section arrived in July.



Hyperberic chambers used for test animals

when the diver descends deeper and stays longer. Although all breathing mixtures must supply a limited amount of life-supporting oxygen, toxicity occurs when the diver breathes excessive amounts of oxygen under pressure. Nitrogen or helium are routinely used as diluents for oxygen, depending upon the depth and duration of the dive. But these inert gases have their own unique disadvantages. For example, nitrogen causes narcosis and increased breathing resistance, and requires the diver to undergo longer periods of decompression. Helium causes rapid loss of body heat, "Donald Duck" speech, and altered excitability of the nervous system.

Basic to solving these problems is the need to define inert gas transport and elimination in the body. Inert gases used as diluents for oxygen are taken up by body tissues under pressure, in a process called "saturation." As the pressure is reduced, the gases must be returned from these tissues—that is, the tissues are desaturated—but in a form that does not inflict acute or chronic injury. To avoid such injury, safe decompression schedules are vital. But such decompression schedules must be based on a quantitative understanding of inert gas transport in the human body; this understanding does not yet exist.

Decompression is defined as a release of pressure, and decompression sickness as the "overt illness which follows a reduction of environmental pressure, sufficient to cause the formation of bubbles from the gases which are dissolved in the tissues" (*3*). The importance of carefully controlled pressure reduction has long been established, but little is known about its effect on bubble formation in living tissue.

The symptoms of decompression sickness are the result of bubbles forming in the vascular system or tissues. These symptoms can be as innocuous as temporary skin rash or mild discomfort in the joints and muscles, but may also include paralysis, numbness, hearing loss, vertigo, unconsciousness, and death (*2,4*). Decompression sickness is treated by recompressing a diver to a pressure sufficient to allow the bubbles to dissolve. When the symptoms have cleared, decompression schedules may be used to decompress the diver to surface pressure.

New modes of therapy for decompression sickness are needed, as well as optimal decompression tables for manned saturation and subsaturation dives. NMRI researchers, focusing on the pathophysiology of decompression sickness (*5*), are attempting to:

- define the mechanisms by which central nervous system and joint dysfunction occur in decompression sickness.
- establish the impact on cardiopulmonary function of the bubbles formed during the decompression process.
- elucidate the interaction of these bubbles with the microcirculation (*6,7*).

The results of this work can be applied to the clinical problems of cerebral air embolism, spinal cord trauma, and stroke. An ultimate goal is to develop objective criteria for diagnosing and predicting decompression sickness, as well as methods for assessing the adequacy of decompression and for detecting tissue damage.

TOXIC EFFECTS OF OXYGEN

To increase diver safety and effectiveness, researchers at NMRI are also striving to understand the basic mechanisms that cause inert gas narcosis. Through animal studies, they are attempting to determine the site of action of narcotic gases and to understand the alterations in membranes that narcotic substances may induce. The interaction of inert gas narcosis and environmental factors such as cold, high concentrations of inspired carbon dioxide, compression rates, and the like must be assessed as they relate to altered cognitive and neuromuscular performance of underwater tasks.

The toxic effects of oxygen are related to the oxygen partial pressure in the breathing medium. Yet elevated partial pressures of oxygen are widely used to speed up decompression and to treat decompression sickness, air embolism, and other clinical problems such as gangrene and carbon monoxide poisoning. Determining the limits of safe oxygen partial pressures to which divers can be exposed is further complicated by the variation in oxygen tolerance among individuals and in one individual from day to day. Individual tolerances also vary between work and rest exposures and wet and dry environments. These considerations affect all phases of diving as well as the design of diving equipment.

The syndrome of oxygen toxicity is being studied at NMRI in intact animals. Researchers are also assessing in organ systems of animals the cellular and biochemical changes that precede and accompany the body function alterations seen in oxygen toxicity. The search is

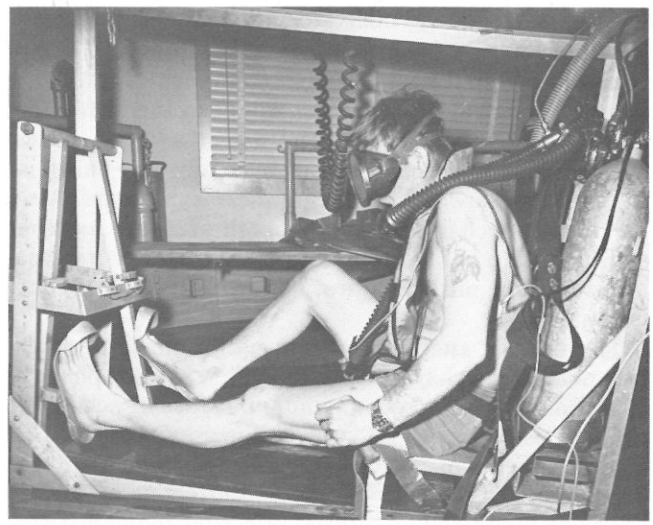
for a way to modify an organism's susceptibility to oxygen toxicity.

The nature of the underwater environment itself is a continuing hazard to the respiratory and circulatory systems. NMRI investigators are trying to determine the "normal" respiratory state for divers, and to establish safe tolerance limits for carbon dioxide retention. Studies are also under way to evaluate the effects of immersion, pressure breathing, external impedance to breathing, and gas density as they relate to the mechanical work of breathing, the energy cost of breathing, and the efficiency of the respiratory muscle. The amount of ventilatory loading a diver can tolerate and the high-pressure nervous syndrome may constitute limits (as yet undefined) to man doing useful work under water. Information from the NMRI studies can also be applied to clinical problems of respiration, such as emphysema and chronic lung disease.

A diver's cardiovascular function is affected by hydrostatic pressure, the nature of the inert gas in the environment, and the high partial pressure of oxygen. The ultimate goal for this work at NMRI is to determine the depth limit at which the circulatory system will function properly. Initially, animal studies will assess the effects of increased pressure and various gas mixtures on the physiological components of the circulatory system at graded hyperbaric pressures. Studies using human volunteers will assess cardiovascular function as it relates to submaximal work in mixed-gas environments at low and high pressures, in wet and dry environments, during long-term exposures, and during compression and decompression.

Cold is particularly penetrating in the diving environment: underwater work in 25° C water produces thermal stress in less than an hour. NMRI scientists are now examining cardiovascular, pulmonary, and endocrine response to thermal stress in the immersed diver at shallow depths (*8*) by monitoring cardiac and respiratory rates, pulmonary ventilation, oxygen and carbon dioxide production, and core temperature. Blood and urine samples are obtained from each diver before, during, and after exposure, so researchers may analyze stress hormones and other biological variables.

Related work focuses on devising methods to precisely quantify, by heat-flux sensors and thermistors, the respiratory and skin heat loss of divers. The goal is twofold: first, to devise equations that predict heat loss and body temperature for any combination of ambient pressure and temperature; second, to define the tolerable range of deviation from normal skin-body temperatures under hyperbaric conditions. The relationship between body heat loss, temperature, and performance will be investigated and defined. The various levels of body heat loss will be correlated to changes in performance on underwater tasks requiring manual dexterity, a sense of touch, strength, and cognitive function—tasks such as would be encountered in underwater rescue or underwater construction and maintenance, for example. This information could lead to the design of equipment to ensure that divers maintain the body heat they need for top performance; it will also provide guidelines for diver rescue and for coping with the heat loss a diver experiences when his equipment fails. The possible relationship between thermal balance and decompression sickness will also be investigated.



Work sled ergometer measures diver's performance

ASSESSING UNDERWATER PERFORMANCE

The study of underwater performance and performance physiology is crucial to the Navy's diving operational goals. The ultimate performance goal is to enable Navy divers to carry out their missions with little or no performance degradation as a result of the environment, diving techniques, or equipment. To attain this goal, diving officers must be able to predict and assess diver performance. At present, there is no body of information that clearly defines the safe working limits of the diver relative to his task, equipment, physical endurance, and physiological weakening.

In general, the factors that contribute to diving performance limitations fall into three categories: sensory limitations, cognitive limitations, and motor performance limitations. A diver's visual field and depth perception are severely limited under water; his judging, estimating, and discriminatory abilities may be affected by the dive conditions, and his motor performance is degraded by cold, neutral buoyancy, and the limited visibility.

A particular motor degradation, the "high-pressure nervous syndrome," occurs at depths of about 1,000 fsw and beyond. This syndrome is believed to result from a disturbance of central nervous system function. Its symptoms appear as electroencephalographic irregularities, tremor, loss of vigilance, altered posture and

balance, fatigue, and microsleep. Researchers at NMRI are investigating the effects of temperature and rate of compression on the high-pressure nervous syndrome to determine whether a diver can adapt to this condition, and if so, to what degree. The use of additive gases, such as higher percentages of nitrogen, are being investigated as a way of reducing these symptoms. Also, the basic mechanisms of the high-pressure nervous syndrome are being studied to obtain further information about the onset, nature, and treatment of this condition.

There is yet another factor in performance degradation under hyperbaric conditions: the effect of pharmacological agents and compounds. Because of accidents, decompression sickness, minor illnesses, pain or discomfort, divers are often taking some medication. Yet drugs that are considered safe and effective at surface pressure may have an altered effect on biological systems in the high-pressure environment. For example, some antihistamines cause behavioral changes—often unpredictable. The NMRI program includes a general pharmacologic study that has surveyed, in several species of animals and under hyperbaric conditions, the activity and toxicity of common therapeutic drugs such as aspirin, caffeine, antihistamines, anesthetic drugs, and antibiotics. Researchers are beginning to study ways the results of these studies can help Navy divers.

HUMAN ENGINEERING

Several tasks have been designed to assess divers' underwater performance:

- the ENERPAC task, in which divers use a hand-operated hydraulic tool to cut into a wire roll.
- a task in which divers maneuver a self-contained load-handling pontoon under water.
- An underwater pipe puzzle assembly task developed at the University of California in Los Angeles (UCLA).
- the SP^2 task—NMRI's revision of the UCLA pipe puzzle.

These tasks were used in the early 1970's to measure divers' performance during evaluations to determine whether the U.S. Navy prototype Mark XII diving system (see cover) was a suitable replacement for the standard Mark V diving system, used since 1930.

Human engineering considerations can also provide much-needed information about the impact of diving equipment and systems on the diver's safety and performance. For example, during the evaluations of the Mark V and Mark XII diving systems, a biomechanical analysis was performed on divers wearing each suit (*9*). This analysis employed 14 biomechanical measures taken from dynamic anthropometry (which deals with range of motion and joint angle changes), and helped pinpoint the restrictions and limitations of the two diving suits.

Human engineering assessments of tools and hyperbaric systems are also under way at NMRI. The use of alternate work systems, such as one-atmosphere diving systems and manipulators, will be explored as possible ways to meet the Navy's goals for deep dives.

Divers and occupants of hyperbaric chambers depend on their life-support systems to provide a pure and physiologically adequate breathing medium. It is therefore important to identify those toxic contaminants that are most likely to cause debilitating or irreversible effects on diving personnel. It is equally important to determine the specific biochemical, physiological, and pathological changes in diving personnel exposed to such contaminants under hyperbaric conditions. While standards exist for long-term exposure to contaminants in submarines, it is not yet known whether these standards are appropriate for hyperbaric environments. Toxicology researchers at NMRI will evaluate such toxic contaminants using animal models in hyperbaric environments. Valid standards for human exposures in hyperbaric operational systems should evolve from these evaluations.

Although man has been diving for centuries, little is known about the long-term and short-term effects of chronic exposures to high pressures and to the gases used in diving systems. As researchers define the effects of hyperbaric exposures on the various body functions and systems, they will also be looking for ways that mammalian systems can adapt or acclimatize to the high-pressure environment.

Outlined here are current problems being studied at NMRI. The research under way and planned may prove that these problems are not barriers to man doing useful work at great depths in the sea.

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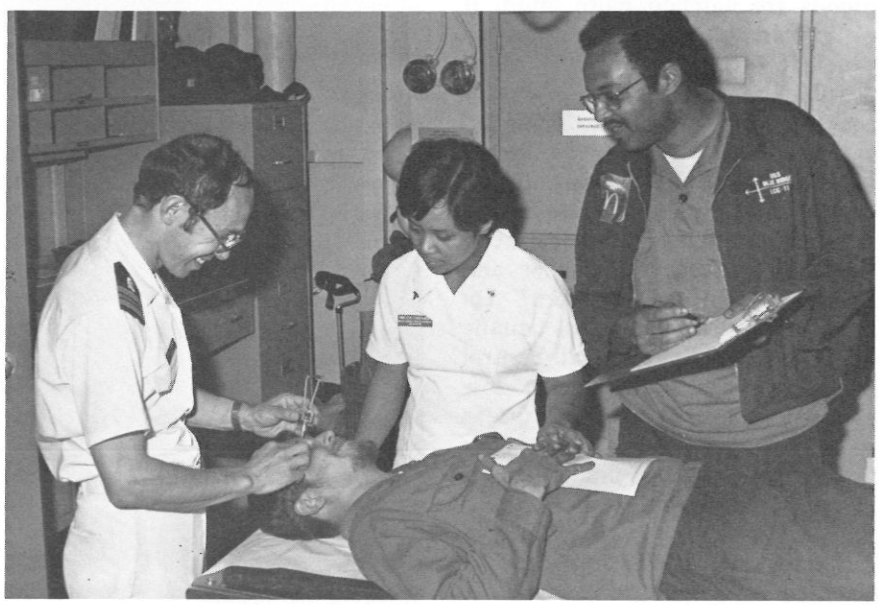
NAVMED Newsmakers

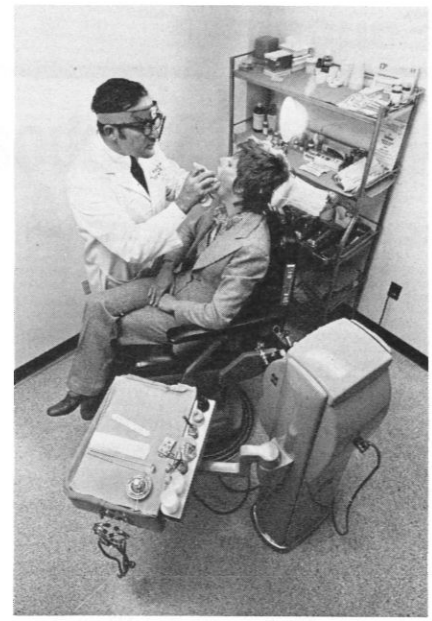
The first lower jawbone transplant at a civilian medical institution was performed at the University of Cincinnati College of Medicine earlier this year. On the operating team was CAPT **Hugh deFries** (MC), head of the Otolaryngology Service at the National Naval Medical Center and a pioneer in mandible transplants and tongue reconstruction. The transplant technique was developed at NNMC and has been performed on only 30 other patients —all in military or Veterans Administration hospitals. "The Navy has good reason to be proud of the developments it has achieved in medical fields," Dr. deFries says. "Navy medical services are on a par with those of the leading medical institutions in the country."

"The Navy—it's not just a job, it's an adventure," read the recruiting ads, and if you don't believe it ask CAPT **Jack Blum** (MC), San Diego urologist and member of the Ready Reserve. During his two-week active duty for training last January, CAPT Blum joined Marine units participating in Operation Jack Frost 77 at Fort Wainwright, Alaska. While the Marines trained for combat in the freezing Arctic winter, Dr. Blum attacked respiratory infections, dehydration, and frozen extremities, not to mention an old preventive medicine problem of Arctic bivouac situations: yellow snow. He returned from the exercise with a packful of new ideas for the Navy's cold weather training manuals.

Shore-based optometrists providing comprehensive eye examinations aboard ship? It's a new wrinkle in health care delivery, but all part of Medical Department efforts to reduce the time crewmembers are away from their duties. In what is believed to be the first such program, Navy optometrists LCDR **James F. Socks** and LTJG **Philip Dixon** brought the services of the NRMC San Diego Eye Clinic to the USS *Blue Ridge* (LCC 19) last April for five days of tonometry examinations, ocular muscle tests, ophthalmoscopy, and slit-lamp studies. Assisting the officers were HM2 **Connie Fentanoza** of NRMC San Diego and HM2 **M.A. Rucker** from the *Blue Ridge* medical department.



Dixon, Fentanoza, Rucker: On the Blue Ridge



Dr. deFries: On a par

The program helped fulfill Navy requirements that workers exposed to microwave radiation receive periodic medical examinations.

In the news: CAPT **Donald L. Sturtz** (MC), who took home the 9th annual NNMC Belly Board Award for outstanding contributions to gastroenterology . . . LTJG **Guy R. Banta** (MSC), named Navy Aerospace Physiologist of the Year . . . CAPT **Robert C. Cefalo** (MC), first Navy medical officer board certified in maternal-fetal medicine . . . RADM **Maxine Conder** (NC), recipient of a Distinguished Alumnus Award from the University of Utah . . . CAPT **Joseph A. Pursch** (MC), winner of the Alcoholism Council of Greater Los Angeles award for achievement in medicine and alcohol rehabilitation . . . LCDR **James T. Dalton** (MSC), first naval officer selected to serve as executive assistant to Dr. Robert N. Smith, Assistant Secretary of Defense (Health Affairs) . . . LT **Warren Williams**, Jr. (MSC), elected president of the Washington, D.C. chapter of the National Naval Officer Association. This association is dedicated to the promotion of human rights and racial equality in the naval service.

War on Shipboard Roaches

LCDR Robert V. Peterson, MSC, USN

Cockroaches on ships are as common a sight to preventive medicine personnel as children with throat inflammations are to pediatricians. In 1975, Navy preventive medicine personnel reported that of 644 ships they visited, 44% were infested with cockroaches. Navy medical entomologists examined the reasons for this high infestation rate at the Triennial Environmental Workshop for Military Entomologists held 10-14 January 1977 at Fort Sam Houston, Tex. Major factors contributing to cockroach infestation were reported to be:

- shipboard structural deficiencies which provide places where cockroaches can hide.
- optimal environmental conditions (temperature, humidity, food) for cockroach development in food service areas.
- reinfestation when infested supplies are used to replenish ships previously freed of roaches.
- poor execution of cockroach control programs, usually due to lack of interest, motivation and training on the part of the ship's crew, as well as poor techniques and inadequate pesticide supplies.

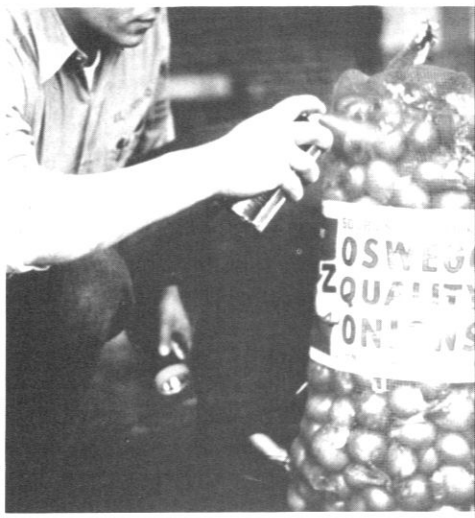
A more unusual reason for infestation is roach resistance to the chemicals used to kill them.

Closed environment. The ideal cockroach habitat requires harborage, food, moisture, and warm temperatures. The closed environment aboard ship, especially in galleys, supplies these needs in abundance. Galleys are usually well insulated and have built-in roach harborages such as false bulkheads and overheads, large overhead clusters of wiring, cracks between stainless steel flashing, ill-fitting or torn lagging, and many inaccessible cracks and crevices which provide thousands of hiding places for roaches. Galleys may be used throughout the day, from early breakfast to midnight rations. When food service workers are constantly busy, they have little time to clean the galley; the resulting accumulations of grease and food particles are a continuous source of food for roaches. Ovens, steam tables, kettles, and dishwashers contribute to warm temperatures and high humidity (moisture) in the galley, completing the habitat requirements for cockroaches.

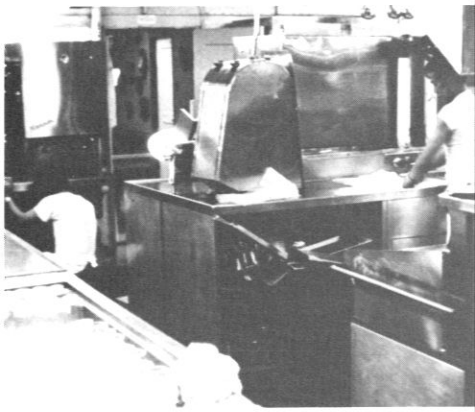
When these ideal environmental conditions exist, as they do on most ships, more roaches survive for longer periods of time and larger broods are hatched more often. If we consider all the features of ships which contribute to large roach populations, it becomes clear why cockroaches have little difficulty establishing themselves aboard ships and multiplying rapidly.

How, then, can this problem be attacked and the commensal relationship between cockroaches and sailors aboard ship broken? On Navy ships, the solution has usually been to modify chemical control procedures by increasing the dosage of insecticide, treating areas more frequently, or changing the insecticide. But these methods have not significantly reduced cockroach infestation on ships; in fact, they may have contributed to greater resistance of shipboard roaches to pesticides.

LCDR Peterson is officer in charge of the Navy Disease Vector Ecology and Control Center, Alameda, Calif. 94501.



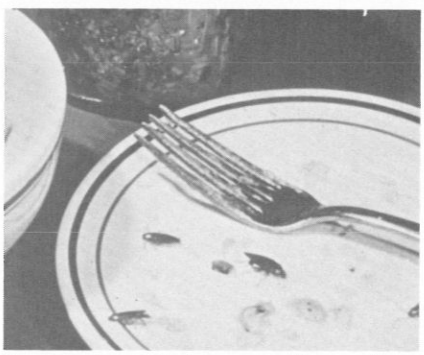
Food supplies coming on board ship are treated for hidden cockroaches



Shipboard galleys provide thousands of hiding places where roaches can breed

Spraying insecticides helps prevent the spread of cockroaches aboard ship

The solutions to the problem are neither simple nor cheap. Radical modifications of galleys will be required. The plethora of cockroach hiding places must be eliminated by analyzing the physical characteristics of ships and designing modifications for problem areas. Such designs should be used in constructing new ships to avoid building roach harborages into the ship. Galley temperature and humidity must be lowered to reduce roach population densities. Good sanitation practices must be followed scrupulously. Most important, the command and its responsible medical personnel must be committed to conducting an effective control program.



Cockroaches thrive on dirty plates stacked in ship's galley

Further research will also help solve the problem. We need to study ways to protect roach-free ships from reinfestation with infested food products. Research is needed to screen and select the best pesticides for shipboard use and to evaluate the practicality of recent advances in pesticide application techniques and equipment designed for cockroach control. Training relevant to the needs of each command must be provided.

The Bureau of Medicine and Surgery is taking initiatives in all these areas. But before real progress can be made in ridding ships of cockroaches, we need a commitment of funds to support research, together with a commitment of support from each command, each Navy entomologist, and all personnel involved in shipboard cockroach control.

BUMED SITREP

BACTERIOPHAGE TYPING . . . Bacteriophage typing is an epidemiologic tool. Submission of specimens for typing is indicated when several *Staphylococcus aureus* cultures are suspected of having a common origin, such as in outbreaks of infection in hospitals. The technique is also useful in determining the source of intoxications in foodborne outbreaks of disease caused by staphylococci.

Bacteriophage typing of *S. aureus* is available from Navy Environmental and Preventive Medicine Unit No. 2, Norfolk, Va. Pure cultures of *S. aureus* are accepted from all Navy medical facilities. Specimens should be submitted on agar slants labeled with appropriate patient identification information and specimen source.

LEAVE/TRAVEL TIME . . . Current regulations state that leave, proceed time, and travel time are charged in that order, with travel time counted in whole days. At the Officer Indoctrination School at Newport, Medical Department officers are told they have until 2400 of their last travel day to report to their new duty station. To require officers to report earlier is to deprive them of travel time to which they are entitled.

AUDIT TIPS . . . Commands should ensure that personnel who distribute pay checks do not participate in the preparation of time or leave records (see NAVCOMPT Manual, par. 045012-2C[1]). Also, commands should ensure that requests for overtime or compensatory time are approved in writing before the work is performed, as required by SECNAV Instruction 7000.11A.

MILITARY DOs . . . A divisional society of osteopathic physicians serving in the U.S. Armed Forces and Public Health Service has been approved by the American Osteopathic Association. Formation of the new Association of Military Osteopathic Physicians and Surgeons will enable AOA members serving in the military to seat representatives in the AOA House of Delegates for the first time next summer. Military osteopathic physicians were previously eligible for AOA membership but had no separate organization to represent them.

President of the new Association of Military Osteopathic Physicians and Surgeons is CDR Robert D. Lutz, MC, USNR, a doctor of osteopathy.

Approximately 500 osteopathic physicians serve in the Armed Forces and Public Health Service, many in intern and residency training programs.

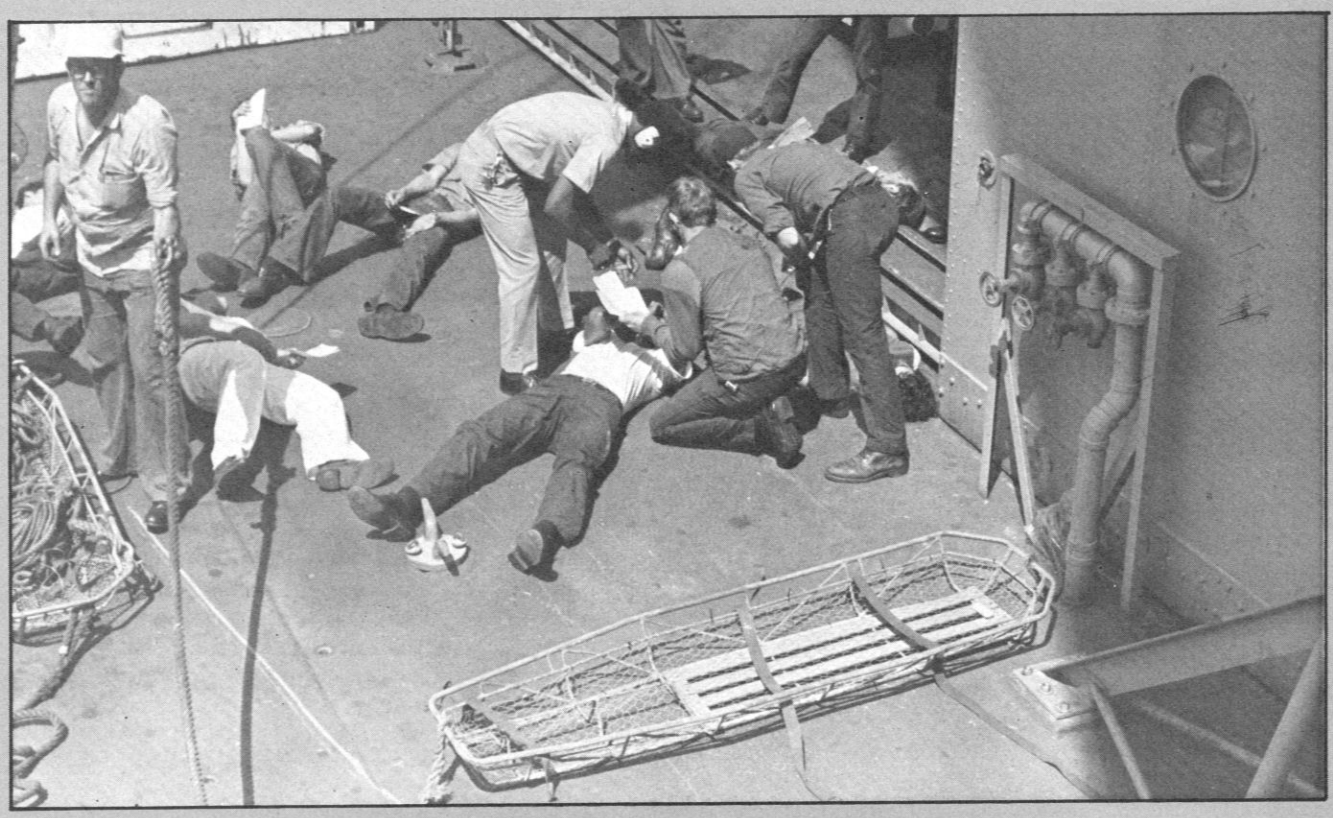
The next business session of the Association of Military Osteopathic Physicians and Surgeons will be held in Atlanta in November 1977, in conjunction with the Annual AOA Scientific Seminar and Convention.

Membership in the new Association is open to members of the Reserve.

AUDIOMETER REPAIR . . . If an audiometer isn't working, a simple plug-in part or adjustment may be all that's needed. Call the Naval Aerospace Medical Institute (NAMI) Hearing Conservation Service—(Area code 904) 452-4457, Autovon 922-4457—for advice, or to order replacement parts. For difficult repairs and annual calibrations, pack audiometers in tri-wall cardboard cartons, with at least one inch of absorbent material on all sides, and ship to: Naval Aerospace Medical Institute, Hearing Conservation Service (Code 11), Naval Air Station, Pensacola, Fla. 32508.

When audiometers are sent to NAMI, accessories such as headphones, hand switches, bone vibrators, and cords should also be forwarded. *Not* to be sent without NAMI approval are mounting racks, tape recorders, phono decks, operation manuals, and special test accessories.

MORE HEARING VANS . . . Encouraged by the success of an experimental mobile hearing conservation unit at NRMC Charleston, the Medical Department is now procuring four more hearing conservation vans for use by naval regional medical centers and hospitals. In the Charleston pilot project, a van brought Navy audiometric technicians to local shore facilities and ships in port, where they tested Navy members' hearing and provided ear protectors. The Charleston van, which reached many people whose hearing had never been tested, demonstrated the feasibility of such a system of delivering audiometry. The project also helped reduce the amount of work time that is lost when Navy members must travel to a clinic for hearing tests.



As part of Solid Shield 77, medical officers care for simulated casualties aboard USS Coronado

On Duty

Solid Shield 77

The more you sweat in peace,
the less you bleed in war.
Chinese proverb

There was plenty of "sweating in peace" going on during Operation Solid Shield 77, held last May in the southeastern United States.

Solid Shield 77 was the tenth in a series of annual joint exercises involving the U.S. Navy Atlantic Fleet, Fleet Marine Force Atlantic, U.S. Army Force Command, and U.S. Air Force Military Airlift and Tactical Air Commands. In this massive exercise, with some 40,000 officers and men, and more than 20 ships participating, emphasis was on command control in a unified environment.

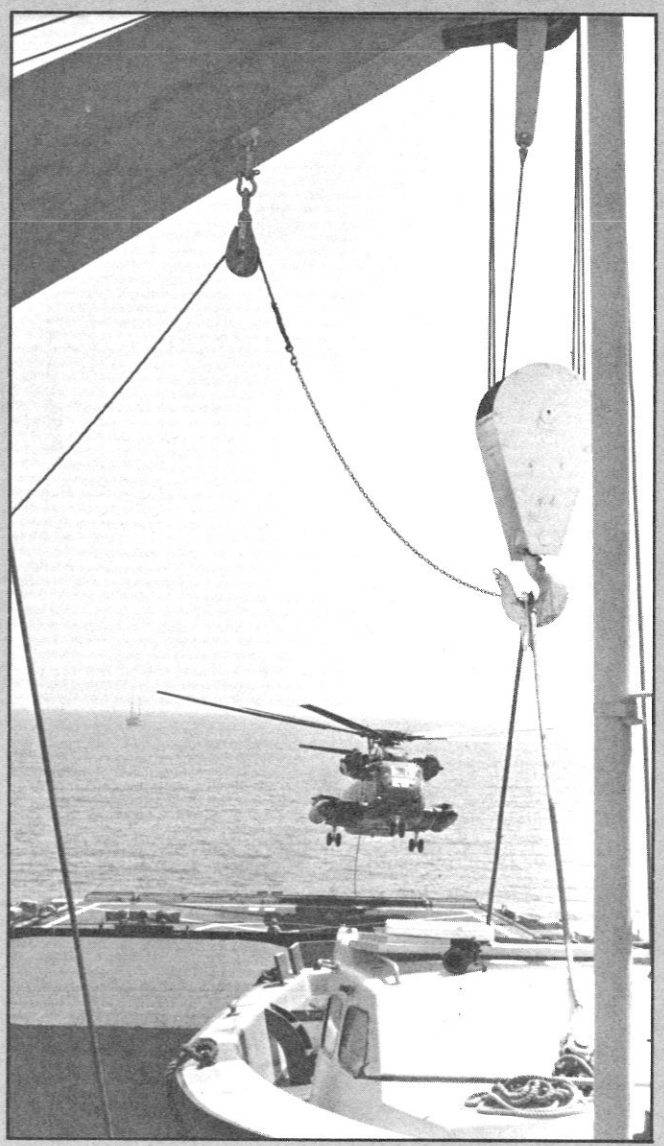
Advance Force flagship for the amphibious assault was USS **Coronado** (LPD-11). The helicopter capability of the amphibious assault ship, the landing craft and amphibious capability of the amphibious transport dock, and the troop-carrying capability of the amphibious transport were integrated for lifting U.S. Marines to the assault area and delivering them to the beach.

A highlight of the Solid Shield 77 exercise was **Coronado**'s recovery of more than a dozen "survivors" who appeared when the scenario called for the minesweeper USS **Illusive** to be "sunk" by an enemy mine. Members of **Coronado**'s medical department sprang into action as survivors were received over the quarterdeck.

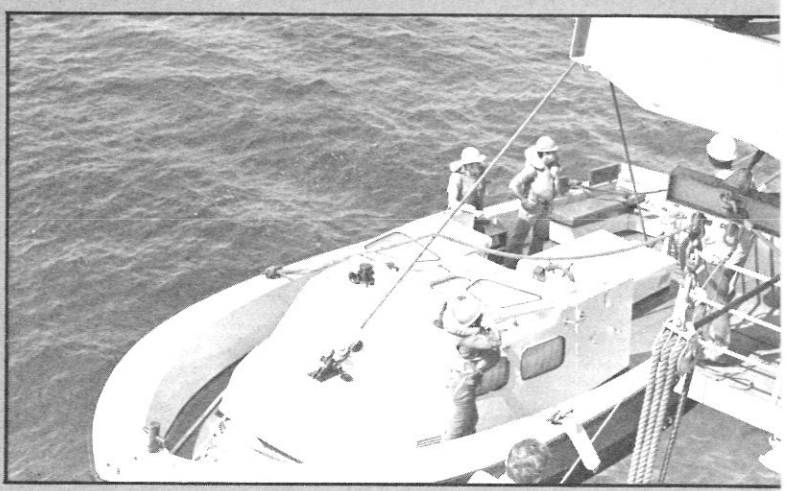
Directing all medical activities was LCDR Lee C. Krapin (MC), a neurologist from Naval Regional Medical Center Philadelphia. "The drill was made realistic by the skillful acting of the men assigned the role of patients," Dr. Krapin remembers. "I recommend that in future exercises the medical problems include mock physical findings and X-rays to heighten the realism of the situation."

LCDR Krapin screened each patient for injuries and established treatment priorities. He consulted often with LT Paul F. Getty (DC),

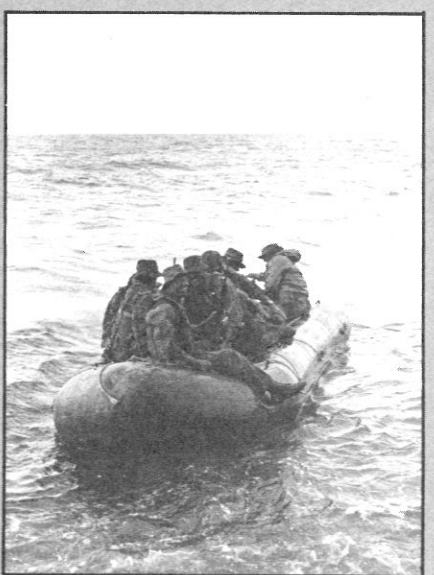
USS Coronado (LPD-11), the Advance Force flagship for Operation Solid Shield 77



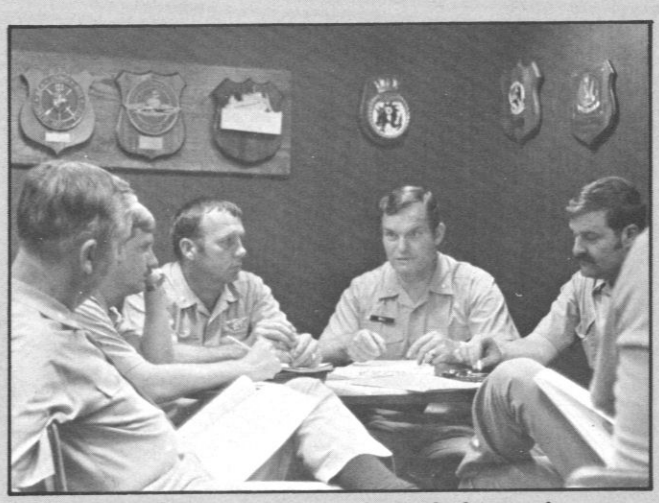
Helicopters sweep the landing zone clear of mines



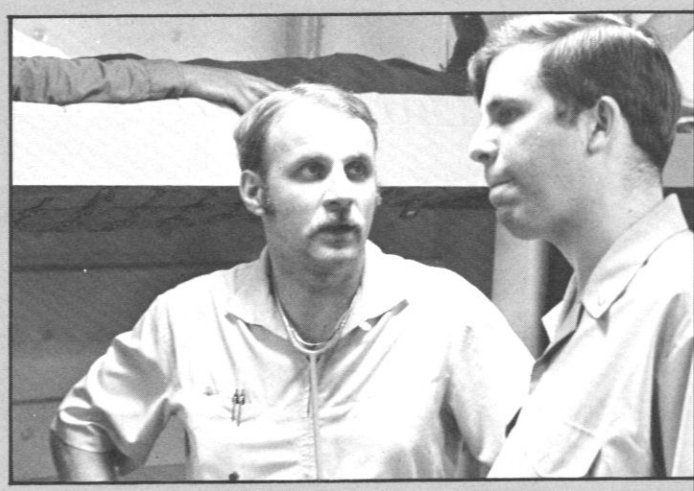
Small boats are launched to carry out Advance Force tasks



A reconnaissance team rides the waves during evening exercises



Joint Control Group meets to evaluate day's exercise



LCDR Krapin and LT Getty confer about patient care

assigned to **Coronado** on temporary active duty while the ship's regular dental officer attended school.

"The simulated casualty exercises allowed dental department members to work hand-in-hand with the medical department in an emergency," Dr. Getty says. "We all found that it was essential for us to be completely familiar with the medical supplies aboard—where to find them, and how to use them."

Can't wait. The spiritual needs of crewmembers were the province of LCDR Richard Lafer, a Naval Reserve chaplain from Minneapolis. He, too, stresses the importance of early preparation.

"You can't wait to get your training after the battle begins," Chaplain Lafer says. "Even though we knew this was only a simulated exercise, it was still shocking to come out on deck and see a dozen men lying there crying out for a doctor, a corpsman, or a chaplain. There was no time then to ask for directions. We just got busy."

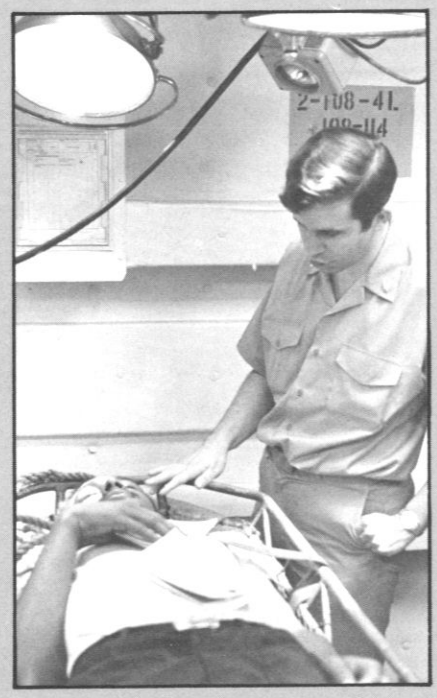
Representatives of the Joint Control Group and the various units involved in Solid Shield 77 planned, directed, and evaluated the exercise. The group met each evening to discuss the day's activity and plan for the next test of **Coronado**'s readiness.

While some men were busy with rescue missions, other Solid Shield participants were kept hopping—and sometimes bobbing—elsewhere. A Marine Corps Force Reconnaissance team rode the waves in a rubber Zebra boat inserted into the exercise secretly at sunset from **Coronado**'s well deck. Mine countermeasures Squadron 12 kept the landing zone clear of mines at night by minesweeping vessels and during the day by helicopter. And day in, day out, small boats were launched from **Coronado** to carry out the many tasks required of the Advance Force.

Realistic exercises like Solid Shield 77 ensure the U.S. Navy will be ready to meet the nation's needs for quick, decisive response at sea.

—Story and photos by CDR David L. Woods, USNR

Chaplain Lafer attends the spiritual needs of an "injured" man



LCDR Krapin screens patient for injuries to determine treatment priorities

Policy

Instructions and Directives

Dispensing over-the-counter drugs

Navy health care facilities may establish programs for handing out over-the-counter drugs, provided the medications and quantities to be dispensed are strictly controlled. Medications must be inexpensive, nonhazardous drugs used to treat simple conditions such as headaches, mild indigestion, mild dermatitis, and common colds. Quantities shall be limited to one complete regimen or a few days' supply. Medications must be dispensed with printed instructions regarding contraindications and when to seek further care. Records shall be kept of drugs dispensed in handout programs.—BUMED Instruction 6710.61 of 27 April 1977.

Reporting civilian employment

The report of civilian positions (MED 5320-3), which all Navy medical facilities must submit annually, has been revised. The report should show only full-time, permanent civilian positions, including executive level, general schedule (GS), and ungraded (Wage Board) positions, as well as total permanent civilian employees. Positions in special employment programs should be excluded. Ungraded positions paid at a rate equal to GS-16 or above need no longer be listed separately, but should be included in the total number of ungraded positions. Positions abolished in the reporting year need no longer be listed. The due date for the report has been changed from 1 August to 1 November.—BUMED Instruction 5320.2E of 12 May 1977.

Accreditation of naval hospitals and medical centers

Virtually all naval hospitals and medical centers should be able to adhere to standards set by the Joint Commission on Accreditation of Hospitals (JCAH), and should achieve and maintain JCAH accreditation. But because of financial constraints, reaching this goal will in many instances require determined and cooperative effort.

During scheduled visits, the Medical and Dental Inspectors General will evaluate action taken to comply with JCAH standards. Also, the Bureau will monitor the accreditation program closely to ensure that the highest quality of health care is maintained.

The BUMED Health Care Administration Division (Code 72) is the contact point for matters pertaining to the JCAH accreditation program.

The costs of the JCAH survey program are funded by the Bureau. Activities to be surveyed may order supplies or services locally, using accounting data provided by BUMED Code 462. Federal hospitals are not required to pay the nonrefundable JCAH survey deposit when they submit an application for survey.

Naval hospitals and medical centers may request a survey following procedures set forth in this instruction. BUMED Code 72 should be informed as soon as the scheduled survey date is known.

Naval hospitals and medical centers shall take immediate action to correct any deficiencies identified in a JCAH survey report. A status report of such actions shall be sent to BUMED Code 72 within 90 days after the facility receives the survey results.—BUMED Instruction 6000.2B of 20 May 1977.

Disaster drills

In line with requirements of the Joint Commission on Accreditation of Hospitals, naval regional medical centers and hospitals shall hold at least one drill every six months to practice their plan for handling external disasters; a separate drill must be held for each work shift. Practice drills for dealing with internal disasters shall be held three times each quarter.

A semiannual letter report (MED-3440-2) shall be sent to BUMED (Code 72) describing drills held in the previous six months. Reports are due on 15 May and 15 November. A complete file documenting performance of drills shall be maintained for JCAH review.—BUMED Instruction 3440.7 of 17 May 1977.

Transferring medical treatment records

This change to BUMED Instruction 6150.1D sets forth specific procedures for forwarding medical records and X-rays when patients are referred to other military health care facilities for consultation or specialty treatment. Reports of clinical services provided by the consulting facility must be forwarded promptly. Records should be returned to the patient's medical facility immediately after the consultation or procedure for which the patient was referred.—BUMED Instruction 6150.1D, change transmittal 1, of 6 June 1977.

Disposing of Marine Corps health and dental records

The health and dental records of Marine Corps members separated for any reason will be closed on the date of separation. The records will be delivered to the command that maintains the enlisted member's Service Record Books or the officer's Officer Qualification Records. These health and dental records will remain with the member's personnel records until they are retired to the National Personnel Records Center in St. Louis. These new procedures were included in change 91 to the *Manual of the Medical Department*, issued 19 May 1977.—BUMED Notice 6150 of 15 June 1977.

Notes & Announcements

IN MEMORIAM

CAPT Bennett F. Avery, MC, USN (Ret.), former editor of the *Armed Forces Medical Journal*, died on 2 July 1977 in Copenhagen, Denmark, at age 75.

Born in Vassar, Mich., on 21 Sept 1901, CAPT Avery received his bachelor of arts degree in 1923 from the University of Michigan, where he also received his M.D. in 1925 and a master's degree in science in 1926. He was a Rockefeller Fellow at the University of Michigan in 1926 and at the University of Chicago Graduate School from 1928 to 1930.

Before entering the naval service, CAPT Avery was professor of anatomy at the American University Medical School in Beirut, Lebanon; dean of the Boston University School of Medicine; and advisor to the Imperial Iranian Ministry of Health.

Dr. Avery was commissioned a captain in the Medical Corps, U.S. Navy on 6 Jan 1950. He reported to the Bureau of Medicine and Surgery in January 1952 as director of the publications division, and in July 1955 became director of the Armed Forces Medical Publication Agency and editor of the *Armed Forces Medical Journal*. He later served as national coordinator of medical education for the National Defense Program from 1958 to 1966, when he retired.

Dr. Avery was a member of the American Medical Association, Association of Military Surgeons of the United States, Massachusetts Medical Society, Norfolk County Medical Society, American Public Health Association, Royal Society of Health, Society of Experimental Biology and Medicine, New York Academy of Sciences, U.S. Naval Institute, and the American Association for the Advancement of Science.

CAPTAIN SELECTEES FOR FY78

Congratulations to Medical Department officers recently recommended for promotion to captain:

Medical Corps: CDRs Robert R. Abbe, Billy J. Blankenship, Robert H. Cave, Daniel H. Day, Valentine D. Galasyn, Joseph Honigman, Raymond B. Johnson, Burton O. Leeb, Glen D. McKnight, Jr., James W. Reid, Jr., Sandro R. Sandri, and Lloyd W. Stetzer.

Dental Corps: CDRs Don M. Barron, Barry Benn, Carmen A. Ciardello, Leonard F. Hodes, Thomas L. Hurst, Charles M. Johnson, Jack V. Lowman, Clyde L. Sabala, Thomas N. Salmon, and Robert G. Schonbrun.

Medical Service Corps: CDRs Ann C. Hatten, Sammy W. Joseph, Paul D. Nelson, Jack J. Palmer, and Donald E. Shuler.

Nurse Corps: CDRs Louise J. Adams, Joan C. Bynum, Eva F. Carson, Marie A. Chisholm, Margaret C. Damiani, Lucille G. Emond, Alma M. Gomes, Mary F. Hall, Dorothy M. Jacobson, Mary Kelly, Eleanor J. Miller, Jo Ann Morton, Lois E. Nickerson, Frances A. Noble, Irene M. Stuart, and Dorothy A. Yelle.

DENTAL CONTINUING EDUCATION COURSES

The following dental continuing education courses will be offered in December 1977:

National Naval Dental Center, Bethesda, Md.
Endodontics — 5-7 Dec 1977

Eleventh Naval District, San Diego, Calif.
Endodontics — 5-7 Dec 1977

U.S. Army Institute of Dental Research, Walter Reed Army Medical Center, Washington, D.C.
Endodontics — 5-8 Dec 1977

Letterman Army Medical Center, San Francisco, Calif.
Current concepts of restorative dentistry — 5-8 Dec 1977

Requests for courses administered by the Commandant, Eleventh Naval District, should be submitted to: Commandant, Eleventh Naval District (Code 37), San Diego, Calif. 92132. Applications for other dental continuing education courses should be submitted to: Commanding Officer, Naval Health Sciences Education and Training Command (Code 5), National Naval Medical Center, Bethesda, Md. 20014. Applications should arrive six weeks before the course begins.

Cross-country travel and travel from outside the continental U.S. to attend dental continuing education courses generally will not be approved due to funding limitations.

AFIP TRAINING ANNOUNCED

The Armed Forces Institute of Pathology (AFIP), Washington, D.C., has announced these training sessions:

- The 14th annual forensic dentistry course to be held 3-6 Oct 1977. Subjects to be covered include recent advances in identification, dental identification in mass disasters, bite marks, and the relationship between forensic dentistry and the work of the Federal Bureau of Investigation. There will be laboratory sessions and a panel discussion on identifying human remains by comparing dental records.
- The 1977 AFIP legal medicine symposium will be held 13-15 Oct 1977. The symposium is designed for people in law, medicine, dentistry, hospital administration, and nursing. Attendees should be well versed in the principles of law or medicine, have five or more years working experience and three or more years in an executive or decision-making capacity in law or medicine. Registration is limited to federal government employees.

• A gynecologic pathology course covering basic anatomy and gross and microscopic pathology of the female reproductive tract, offered 1-4 Nov 1977. Priority is given to military applicants preparing for specialty boards in obstetrics and gynecology.
• An otolaryngic course covering temporal bone pathology and surgical pathology of the head and neck. Requirements for admission are flexible but preference is given to residents and practitioners in otolaryngology and pathology who want to learn more about ear, nose and throat pathology. The course is free and will be given quarterly starting each January, April, July, and October. Physicians seeking shorter training periods will be considered.

Applications for these courses should be submitted to the Director, Armed Forces Institute of Pathology, Attention: AFIP-EDZ, Washington, D.C. 20306.

AMSUS TO HOLD ANNUAL MEETING

"The Federal Health Services in the Next Decade" is the theme of the 84th annual meeting of the Association of Military Surgeons of the United States (AMSUS), to be held 27 Nov-1 Dec 1977 at the Shoreham Americana Hotel, Washington, D.C.

Dr. Theodore Cooper, former Assistant Secretary of Health, Department of Health, Education, and Welfare, will analyze the Federal Government's recent swine flu program. More than 75 papers will be presented, and a large selection of professional exhibits will supplement the scientific sessions. A film program is also scheduled.

General chairman for the meeting is James H. Erickson, M.D., director of the Bureau of Medical Services, Health Services Administration, U.S. Public Health Service. Faye G. Abdellah, Ph.D., chief nurse officer, Public Health Service, and director, Office of Long Term Care, Health Care Financing Administration, DHEW, is program chairman. James D. Felsen, M.D., staff director, Office of the Surgeon General, Public Health Service, is program vice chairman.

For further information write: AMSUS, 10605 Concord St., Suite 306, Kensington, Md. 20795.

DEADLINE FOR USUHS APPLICANTS

The Uniformed Services University of the Health Sciences (USUHS) is accepting applications for admission to its class of 1982.

Interested persons must apply through the American Medical College Application Service, 1776 Massachusetts Ave., Suite 301, Washington, D.C. 20036. Applicants should submit all required materials well in advance of the 15 Nov 1977 deadline.

New medical college admission test scores are required from all applicants. MCAT scores from before 1977 will not meet this requirement. Individuals who did not take the new medical college admission test in the spring must arrange to do so this fall to be considered for the 1982 class.

For more information write to: Admissions Office, Uniformed Services University of the Health Sciences, 4302 Jones Bridge Rd., Bethesda, Md. 20014.

ABSTRACTS SOUGHT FOR PEDIATRIC SEMINAR

The Wilford Hall USAF Medical Center, San Antonio, Tex., will host the 13th annual uniformed services pediatric seminar to be held 13-16 March 1978 at the Marines Memorial Club, San Francisco, Calif.

Abstracts are sought for consideration of the Bruton Award, presented for the best research paper, and the Margileth Award, presented for the best clinical paper. Selections for both awards will be made from completed papers, which will be requested after the abstracts are selected.

Abstracts should be at least 300 words. Authors should indicate on the abstract whether the article is considered research or clinically oriented. Submit abstracts by 15 Nov 1977 to: COL Howard H. Johnson, Wilford Hall USAF Medical Center (SGHP/25), Lackland AFB, Tex. 78236.

HEALTH CARE ADMINISTRATION CLASS GRADUATES

Thirty-nine Medical Service Corps officers and one Coast Guard officer graduated from the Naval School of Health Care Administration on 16 June 1977. CAPT E.M. Bryant, Jr. (MSC), commanding officer at NSHCA, presided at the ceremony which marked the 38th consecutive year of the health care administration program and fifth year of direct affiliation with The George Washington University Department of Health Care Administration.

The Surgeon General's Award for Scholastic Achievement went to LTJG Brian Colfack (MSC), who completed the program with a 4.0 cumulative average. LT Charles J. Rosciam (MSC) was cited for outstanding military leadership.

The graduates are: J. Anderson, R.W. Boyles, G.R. Brown, R.E. Bubb, B.G. Clark, B.R. Colfack, C.D. Cruit, J.B. Dillard, F.J. Dunaway, B.R. Edgmon, K.W. Franklin, G.D. Fudge, J.N. Gallis, S.E. Garnto, J.M. Garrett, J.A. George, J.E. Greenan, D.A. Hargett, G.S. Haslam, R.H. Hazelton, D.L. Holm, P. Horwhat, S.M. Hynes, R.A. Kulcsar, W.F. Lorenzen, R.C. Marthouse, D.H. McGarvey, C.F. McGinn, S.D. Olson, R. Otlowski, R.L. Patton, J.C. Peterson, P.M. Peterson, R.W. Rodell, C.J. Rosciam, R.M. Schnable, C.T. Shehane, J.E. Shore, C.A. Spencer, R.T. Williams.

"GO NAVY" CAMPAIGN

Navy personnel have been asked to display the familiar "Go Navy" bumper stickers, which are available from LTJG Sandy Geiselman, Navy Recruiting Command (Code 45), 4015 Wilson Blvd., Arlington, Va. 22203. Her telephone number is (202) 692-4726 or Autovon 222-4726.

A Questionnaire for Preventive Dentistry Programs

CDR L.W. Blank, DC, USN

Teaching has long been recognized as an important technique for helping dental patients establish effective oral hygiene habits (*1,2,3*). A means of obtaining feedback from our patients is invaluable in assessing the effectiveness of our teaching methods. This article will present an evaluation mechanism (a questionnaire) and describe a survey conducted aboard the USS *Nimitz* to find out whether crewmembers were benefitting from preventive dentistry classes.

The *Nimitz* preventive dentistry program, established about three years ago, consists of an oral prophylaxis, scaling of the teeth, and stannous fluoride application. Lectures, television presentations and a dental disease prevention class are also offered. The one-hour class, taught by a dental technician, is given to six crewmembers at a time. In the first part of the class, students learn the causes of dental caries and periodontal disease, with emphasis on the role of bacterial plaque in tooth decay. To individualize instruction, illustrations are redrawn on a chalkboard for each class, and a phase contrast microscope coupled to a television system is used to show students their own plaque samples. The second part of the class is devoted to group and individual instruction in how to use disclosing media, dental floss, and intrasulcular toothbrushing techniques.

THE SURVEY

According to Cassidy (*4*), people establish new habits by progressing through five stages: awareness, interest, involvement, action, and habit. To find out how well we were helping patients achieve the first stage—awareness of preventive techniques—and how we could improve our teaching methods, the *Nimitz* preventive dentistry staff developed a questionnaire for patients. Each question covers material discussed in the dental disease prevention class. We distributed the questionnaire to 123 crewmembers, of whom 65 had attended the class and 54 had not. To ensure a random sampling, every fifth person who reported to the dental clinic was given a questionnaire. Since a computerized recall system involving all crewmembers is used to set up dental appointments on the ship, a certain number of nonvoluntary patients (with assumed low dental interest) reported to the clinic and were included in the study, giving us a good cross section of people. One form was not returned, and three forms which were returned incomplete were not included in our analysis; thus, 119 men comprised the final sample.

All questionnaires were graded by the same person, who used an answer key to ensure that responses were judged by the same standard. To eliminate bias in scoring, the grader did not know which questionnaires were filled out by men who had attended the class.

RESULTS

The mean number of correct answers, with standard deviation, was 7.5 ± 1.6 for the 65 crewmembers who had attended the dental disease prevention course, and 5.5 ± 1.4 for the 54 men who had not. Thus we found that class "graduates" scored higher on the questionnaire than did crewmembers who had had no preventive dentistry training in the *Nimitz*.

In question 4, the men were asked how many times a week they use dental floss. The mean number of times per week and standard deviation was 4.7 ± 2.4 for the 65 men who had attended the class, and 2.7 ± 2.3 for the 54 men who had not attended the class—a notable difference.

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NIMITZ PREVENTIVE DENTISTRY QUESTIONNAIRE

INTRODUCTION: THIS QUESTIONNAIRE IS NOT A TEST; YOUR ANSWERS WILL TELL US IF WE ARE DOING A GOOD JOB IN EDUCATING THE CREW ABOUT DENTAL HEALTH, AND WHAT WE CAN DO TO IMPROVE OUR TEACHING. WE ARE NOT ASKING YOUR NAME, BUT PLEASE ANSWER EACH QUESTION TO THE BEST OF YOUR ABILITY.

1. WHAT IS THE SINGLE MOST IMPORTANT AGENT WHICH CAUSES TOOTH DECAY, GUM DISEASE AND BAD BREATH? (ONE WORD) _____

2. IF TOOTH DECAY & GUM DISEASE ARE NOT CONTROLLED, WHAT WILL EVENTUALLY HAPPEN TO THE TEETH? (BRIEF ANSWER)

3. HOW MANY TIMES PER DAY MUST YOU THOROUGHLY CLEAN YOUR TEETH, WITH THE TOOTH BRUSH & DENTAL FLOSS, TO PREVENT GUM DISEASE, TOOTH DECAY AND BAD BREATH? (CIRCLE ONE ANSWER)

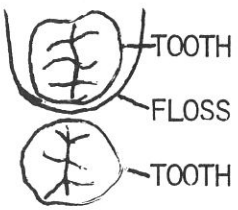
1, 2, 3, 4, 5, 6, 7

4. HOW MANY DAYS PER WEEK DO YOU USE DENTAL FLOSS TO CLEAN BETWEEN ALL OF YOUR TEETH? (CIRCLE ONE ANSWER)

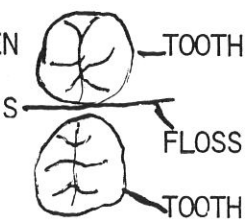
LESS THAN 1, 1, 2, 3, 4, 5, 6, 7, MORE THAN 7

5A. WHEN USING DENTAL FLOSS TO CLEAN BETWEEN YOUR TEETH, HOW DO YOU HOLD THE FLOSS BETWEEN YOUR TEETH? (CIRCLE ONE ANSWER) (ALL ARE TOP VIEWS OF THE TEETH)

A. WRAPPED AROUND EACH TOOTH LIKE THIS



B. STRAIGHT BETWEEN EACH TOOTH LIKE THIS



C. OTHER: (DRAW A PICTURE IF NECESSARY)

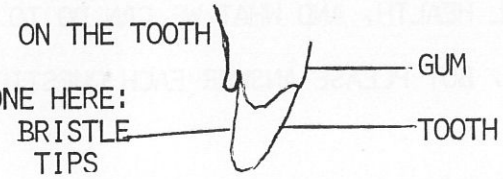
D. DON'T USE DENTAL FLOSS

5B. HOW DO YOU MOVE THE DENTAL FLOSS ONCE YOU GET IT BETWEEN YOUR TEETH? (CIRCLE ONE ANSWER)

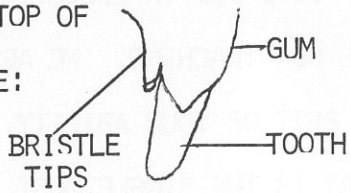
A. UP & DOWN B. SIDEWAYS C. COMBINATION OF A & B D. DON'T USE DENTAL FLOSS

6A. WHEN BRUSHING, WHERE DO YOU PLACE THE TIPS OF THE BRISTLES WHEN YOU BEGIN EACH STROKE? (CIRCLE ONE ANSWER) (ALL ARE SIDE VIEWS OF THE TEETH)

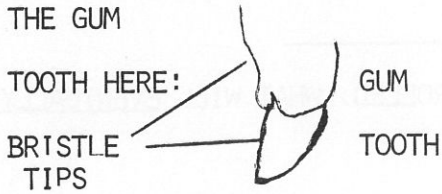
A. ON THE TOOTH ALONE HERE:



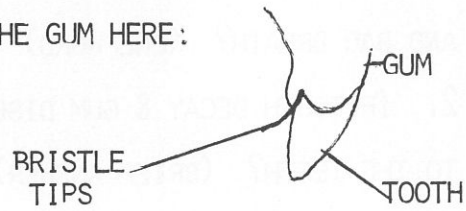
B. ON THE TOP OF THE GUM HERE:



C. HALF ON THE GUM HALF ON THE TOOTH HERE:



D. UNDER THE GUM HERE:



6B. WHAT KIND OF TOOTHBRUSH STROKE DO YOU USE WHEN BRUSHING THE SIDES OF YOUR TEETH, AS PICTURED ABOVE? (CIRCLE ONE ANSWER)

A. CIRCULAR B. BACK AND FORTH C. UP AND DOWN

D. JIGGLE
E. UP ON THE LOWER AND DOWN ON THE UPPER
F. OTHER (PLEASE EXPLAIN) _____
G. COMBINATION (PLEASE EXPLAIN) _____

6C. IS THIS BRUSH STROKE (CIRCLE ONE ANSWER)

A. LARGE AND FAST B. SMALL AND SLOW C. LARGE AND SLOW D. SMALL AND FAST

E. OTHER (PLEASE EXPLAIN) _____

7. PLEASE NAME THE KIND OF TOOTHPASTE YOU USE _____

8. THERE IS ONE PERSON WHO IS RESPONSIBLE FOR MAINTAINING YOUR TEETH IN GOOD HEALTH. WHO IS THAT PERSON? _____

9. HAVE YOU BEEN TO THE NIMITZ PREVENTIVE DENTISTRY LECTURE? (CIRCLE ONE ANSWER)

A. YES B. NO

THANK YOU FOR YOUR TIME AND ATTENTION. PLEASE TURN THIS IN TO THE PERSON AT THE FRONT DESK.

We analyzed the frequency of incorrect answers for crewmembers who had attended the class, and ranked the questions in order of how often they were answered incorrectly. The question answered incorrectly most often was 6A—When brushing, where do you place the tips of the bristles when you begin each stroke?—followed by:

3. How many times per day must you thoroughly clean your teeth, with the toothbrush and dental floss, to prevent gum disease, tooth decay and bad breath?

6C. Is this brush stroke large and fast? small and slow? large and slow? small and fast?

6B. What kind of toothbrush stroke do you use when brushing the sides of your teeth?

5A. When using dental floss to clean between your teeth, how do you hold the floss between your teeth?

1. What is the single most important agent which causes tooth decay, gum disease, and bad breath?

2. If tooth decay and gum disease are not controlled, what will eventually happen to the teeth?

7. Name the kind of toothpaste you use.

5B. How do you move the dental floss once you get it between your teeth?

Question 8—Who is the one person responsible for maintaining your teeth in good health?—was the question most often answered correctly. The fact that most men surveyed answered it correctly indicates that our patients understand they are responsible for their own dental health. Most of them know they should use a fluoride toothpaste (question 7), and that dental floss should not be used in a "sawing" motion (question 5B). Many patients know that bacteria cause most dental diseases (question 1), that they will lose their teeth if those teeth are neglected (question 2), and that in flossing, the dental floss should be wrapped around each tooth (question 5A); however, these points needed some reinforcement. The concept that required the most reemphasis was daily use of intrasulcular brushing—using a slow, small motion to clean the teeth (questions 6A, 3, 6C, 6B). We told our staff members which material students did not seem to remember and asked staff members to reemphasize these points in class and during dental appointments.

We made no attempt to ascertain when the person answering the survey had last attended the class, or whether the time that had elapsed made any difference in how much information he remembered. (This area offers an opportunity for further study.) However, we did find out that crewmembers who had taken the class scored higher on the questionnaire and (if we assume responses were honest) use dental floss more often than men who had not had the training. We discovered that our class is helping to achieve the goal of the *Nimitz* Preventive Dentistry Program: to establish the habit of good oral hygiene.

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4. Cassidy R: Psychological factors in preventive dentistry. Ala J Med Sci 5(3):357-369, 1968.

ANSWERS TO QUESTIONNAIRE

1. Plaque, germs, bacteria, bacterial acids, bacterial chemicals, bacterial wastes.
2. Loss of teeth, teeth fall out, teeth rot out, teeth removed, have to wear dentures.
3. 1
4. Answers to this question were not included in the overall scoring, because there was no correct answer. Answers were analyzed separately to compare flossing habits of crewmembers who attended the class with flossing habits of those who did not attend (see results).

5A. A
5B. A or C
6A. D
6B. A, C, D, E, or combination of these answers.
6C. B
7. A fluoride toothpaste.
8. Me, myself, I, patient's name.

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